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GLOBAL DATA MONITORING REPORT

October, 1996

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CONTENTS

1. Introduction

2. Global Data Monitoring Statistics

3. Composite Observing Systems for the North Atlantic (COSNA)

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1. Introduction

As the WMO-appointed lead centre for monitoring surface marine data, the U.K. Meteorological Office produces monthly statistics on the quality of these observations received at RSMC Bracknell. This report includes this information along with statistics for most other types of data. The figures and tables contained herein are presented according to the agreed standards for the exchange of monitoring results.

The report is based on data received at the UK Meteorological Office Headquarters, Bracknell in time for inclusion into the appropriate analysis. The evaluation of data quality is based on comparison with the appropriate 6-hour global model forecast (background field). Generally, the background field is of high quality except in data sparse areas, tropical regions and areas close to steep orography where care should be taken in interpreting the statistics shown.

Comments or queries on the report are welcome and should be addressed to:-

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2 Global Data Monitoring Statistics

Ships, Fixed buoys, Platforms and Drifting buoys observations

TABLES 1-2 contain lists of the stations which are considered to have returned suspect observations of pressure, windspeed, wind direction or temperature, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 1 and 2 show 10 degree lat/long box average numbers of SHIP/SYNOP and DRIFTER observations received per day throughout the month at Bracknell and assimilated into model runs. Only data from the main hours of 00 UTC, 06 UTC, 12UTC and 18 UTC are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Synop Observations

Table 3 contains a list of stations which are considered to have returned suspect observations of Pressure during the month. The criteria for quality control are given in the header page. The reporting practice of each station is included in the list of statistics.

At RSMC Bracknell, for synoptic stations at or below a height of 500 metres, reported mean sea-level pressure is used in the statistics. If this is unavailable the mean sea-level pressure is calculated from the reported station-level pressure and temperature.

For synoptic stations above 500 metres, the mean sea-level pressure is calculated from the reported station-level pressure and temperature, or, if these are not available the height of a standard pressure-level (e.g.: 850 hPa or 700 hPa). If neither of these are available, the reported mean sea-level pressure is used.

Some stations vary their reporting practice according to the observation hour (e.g.: some stations in the CIS report both mean sea-level and station-level pressure at 00 & 12 UTC, but only mean sea-level pressure at 06 & 18 UTC). For monitoring purposes, reported mean sea-level pressure is stored separately from that calculated from station-level pressure or height of a standard pressure-level. Only statistics for the preferred method (see above) are presented in this report, and so for certain high-level stations, such as those from the CIS, approximately half of the number of observations actually received will appear in the statistics.

Aircraft observations

TABLE 4 contains a list of statistics calculated from data received from all airline carriers.

Figure 3 shows 10 degree lat/long box average numbers of AIREP/ASDAR reports received per day throughout the month at Bracknell and assimilated into model runs in the layer 70-500 hPa. Observations with a vector wind difference (compared with the model background field) of >60 m s^{-1} have been excluded. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

Figures 4-7 show wind statistics for AIREP/ASDAR in the layer 70-500 hPa. Observations with a vector wind difference > 60 m s^{-1} have been excluded. Statistics have not been calculated for 10 degree lat/long boxes containing <31 observations.

Figure	Parameter
4	Mean wind vectors
5	Mean observation - background wind vector
6	Mean observation-background speed (m s^{-1})
7	RMS observation-background vector (m s^{-1})

Radiosonde Observations

TABLES 5-7 contain lists of the stations which are considered to have returned suspect observations of geopotential height, vector wind or wind direction, as appropriate, during the month. The criteria for quality control are given on the header page for each table.

Figures 8 and 9 show 10 degree lat/long box average numbers of TEMP 500 hPa GEOPOTENTIAL HEIGHT and TEMP/PILOT 300 hPa WIND observations received per day throughout the month at Bracknell and assimilated into model runs. Data from all hours are included. Box average values are plotted as the nearest whole number (values of x.5 are rounded up). Where the average is more than 999, then 999 is plotted. A box with no observations is blank. If the 24 hour average >0 but <0.5, then 0 is plotted.

APPENDIX I shows details of the gross error limits used in TABLES 5 and 6 and the weights used in the RMS values in TABLE 5.

Satellite Observations

Figures 10-24 show satellite wind statistics for all geostationary satellites. All plots other than **AVAILABILITY** show average data where there are > 10 observations in a 10 degree lat/long box.

Figure	Parameter Plotted	Layer (hPa)
10	Availability/average daily number	701-1000
11	Vector mean wind (observed)	701-1000
12	Observation-background vector wind difference	701-1000
13	Mean observation-background speed differences	701-1000
14	RMS observation-background vector difference	701-1000
15	Availability/average daily number	401-700
16	Vector mean wind (observed)	401-700
17	Observation-background vector wind difference	401-700
18	Mean observation-background speed differences	401-700
19	RMS observation-background vector difference	401-700
20	Availability/average daily number	101-400
21	Vector mean wind (observed)	101-400
22	Observation-background vector wind difference	101-400
23	Mean observation-background speed differences	101-400
24	RMS observation-background vector difference	101-400

Figures 25-27 show satellite mean observation-background temperature differences for NOAA-12 soundings at 500 km resolution and figures 28-30 show the same statistics for NOAA-14. Data are plotted where there are > 30 observations in a 10 degree lat/long box.

Figure	Layer (hPa)
25/28	850-1000
26/29	100-300
27/30	30-50

3 Composite Observing Systems for the North Atlantic (COSNA)

This section shows statistics for upper air (radiosonde and aircraft) and surface (drifter) data for the North Atlantic area for data received at Bracknell during the month.

TABLE 8 shows quality statistics for **Mean Sea-level Pressure, Windspeed and Wind Direction** received at Bracknell in DRIFTER code during the month for the area
10°N - 80°N, 85°W - 0°W.

TABLE 9 shows quality statistics for **Temperature and Vector Wind** received at Bracknell from aircraft during the month for the area 40°N - 70°N, 60°W - 0°W.

Table 10 - 13 show quality statistics **(Geopotential Height and Windspeed at 100 and 500 hPa)** for all TEMPSHIPS in the area bounded by 0°N - 90°N, 100°W - 40°E and selected TEMP stations within the same area.

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Revisions

1. May 95 Monitoring statistics for NOAA-11 removed. Figures 25-27 now show data for NOAA-12
2. May 95 Notes giving details of observations included in wind direction statistics clarified and corrected.
3. August 95 Monitoring statistics for NOAA-14 added with figures 28-30.
4. February 96 Monitoring statistics for GOES-7 has been replaced by statistics for GOES-8 and GOES-9.

TABLE 1

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SHIPS, FIXED BUOYS AND PLATFORMS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for ships, fixed buoys and platforms.

Standard of comparison :Background field from Bracknell global model.

Observation times :00, 06, 12, 18 UTC

Elements monitored :Mean sea level pressure (hPa).
:Wind speed ($m\ s^{-1}$).
:Wind direction (Degrees).

Parameters monitored

:NOBS :Number of observations received excluding duplicates.

:NGE :Number of observations with gross errors.

:PGE :Percentage of observations with gross errors.

:SD :SD of difference of observations from background values excluding those with gross errors.

:BIAS :Mean difference of observations from background values excluding those with gross errors.
N.B. a positive bias indicates the observation is veered to the background.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors.

GROSS ERROR LIMIT :15 hPa (pressure)
:25 $m\ s^{-1}$ (vector wind)

SELECTION CRITERIA :NOBS ≥ 20 , and one or more of the following:

1.|bias| ≥ 4 hPa (pressure),
≥ 5 $m\ s^{-1}$ (wind speed),
≥ 30 degrees (direction).

2.SD ≥ 6 hPa (pressure),
≥ 80 degrees (direction).

3.PGE ≥ 25

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 $m\ s^{-1}$

IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE									
BOAB	ALL	MSLP	SUR	59	0	0	2.1	-4.2	4.7
CG2248	ALL	MSLP	SUR	36	36	100	0.0	0.0	0.0
C6FA6	ALL	MSLP	SUR	68	0	0	0.9	-6.4	6.5
C6HD5	ALL	MSLP	SUR	34	1	3	2.3	6.3	6.7
C6LI6	ALL	MSLP	SUR	61	2	3	1.1	9.8	9.9
ELQR6	ALL	MSLP	SUR	33	0	0	1.3	5.1	5.3
ELRE5	ALL	MSLP	SUR	65	0	0	1.6	6.7	6.9
EUJV	ALL	MSLP	SUR	47	1	2	1.6	8.6	8.8
HZZG	ALL	MSLP	SUR	32	0	0	1.8	4.2	4.6
KNDM	ALL	MSLP	SUR	23	0	0	1.3	5.4	5.6
LAVG4	ALL	MSLP	SUR	37	0	0	1.5	10.7	10.8
LAWR2	ALL	MSLP	SUR	23	0	0	0.8	5.2	5.2
NHIC	ALL	MSLP	SUR	29	1	3	5.8	8.3	10.1
NYUK	ALL	MSLP	SUR	66	0	0	1.5	-4.1	4.4
OUNI5	ALL	MSLP	SUR	37	0	0	1.3	-4.0	4.2
OZBW6	ALL	MSLP	SUR	94	0	0	1.0	4.0	4.1
P3XM4	ALL	MSLP	SUR	26	0	0	1.5	-5.9	6.1
SYMK	ALL	MSLP	SUR	32	0	0	1.4	5.5	5.7
S6CL	ALL	MSLP	SUR	32	0	0	1.5	5.4	5.6
UCJJ	ALL	MSLP	SUR	21	0	0	1.7	5.8	6.1
UCJV	ALL	MSLP	SUR	34	0	0	1.5	-5.8	6.0
UNRK	ALL	MSLP	SUR	32	7	22	4.9	-4.3	6.5
USNN	ALL	MSLP	SUR	38	0	0	1.3	-4.6	4.8
UVJB	ALL	MSLP	SUR	47	0	0	1.6	7.2	7.3
VCTK	ALL	MSLP	SUR	23	19	83	4.7	-8.7	9.9
VGJC	ALL	MSLP	SUR	22	7	32	7.7	-8.7	11.6
VOPM	ALL	MSLP	SUR	31	20	65	3.5	-7.3	8.1
VRUQ6	ALL	MSLP	SUR	52	15	29	7.3	0.8	7.3
V2IS	ALL	MSLP	SUR	46	14	30	5.6	-6.5	8.6
V2SA	ALL	MSLP	SUR	25	3	12	2.0	-10.0	10.2
WRGJ	ALL	MSLP	SUR	60	57	95	1.9	-11.8	11.9
YJYS6	ALL	MSLP	SUR	25	0	0	1.5	6.2	6.3
ZCBC2	ALL	MSLP	SUR	75	7	9	6.0	1.0	6.1
3ESE9	ALL	MSLP	SUR	47	0	0	1.1	8.8	8.8
3EWJ9	ALL	MSLP	SUR	34	0	0	1.0	5.6	5.7
3FGQ3	ALL	MSLP	SUR	22	0	0	1.2	7.0	7.1
3FZW	ALL	MSLP	SUR	29	0	0	2.7	4.8	5.5
4XGT	ALL	MSLP	SUR	22	0	0	0.7	-4.5	4.6
9MCD	ALL	MSLP	SUR	77	0	0	2.5	11.5	11.7
9VIH	ALL	MSLP	SUR	55	0	0	1.0	-5.7	5.8
9VOP	ALL	MSLP	SUR	22	0	0	1.0	-4.0	4.1
WIND SPEED									
C6KE3	ALL	SPEED	SUR	76	3	4	6.5	7.3	9.8
ELFU4	ALL	SPEED	SUR	34	0	0	4.0	6.2	7.4
ELRR5	ALL	SPEED	SUR	27	0	0	4.2	5.3	6.7
GHMA	ALL	SPEED	SUR	58	0	0	3.9	-6.3	7.4
GYZW	ALL	SPEED	SUR	47	0	0	3.4	5.1	6.2
LADB2	ALL	SPEED	SUR	36	0	0	3.9	5.5	6.7
OUSE6	ALL	SPEED	SUR	43	0	0	4.5	5.1	6.8
OWDQ2	ALL	SPEED	SUR	27	1	4	6.9	9.2	11.5
OXRA6	ALL	SPEED	SUR	47	0	0	3.1	5.0	5.9
PFFH	ALL	SPEED	SUR	37	0	0	6.3	6.6	9.1
PJOX	ALL	SPEED	SUR	76	4	5	6.5	5.9	8.8
UBLX	ALL	SPEED	SUR	32	1	3	5.0	6.0	7.8
WIND DIRECTION									
C6KP2	ALL	DIRN.	SUR	48	0	0	47.0	35.9	59.1
C6MY6	ALL	DIRN.	SUR	24	0	0	44.4	-37.2	57.9
DBBC	ALL	DIRN.	SUR	20	0	0	136.0	63.7	150.2

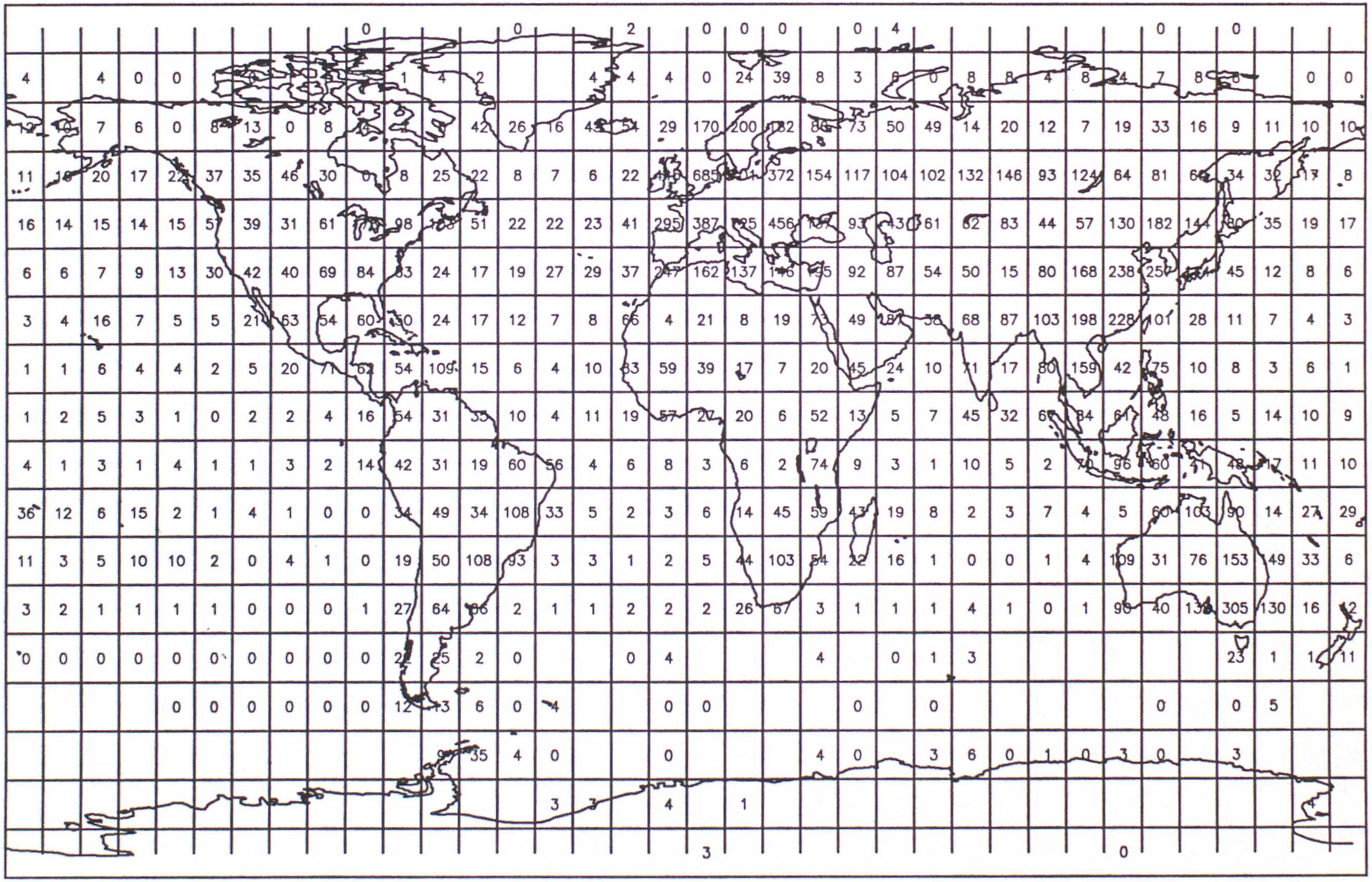
IDENTIFIER	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
WIND DIRECTION									
V2AB9	ALL	DIRN.	SUR	23	0	0	37.5	43.4	57.4
43001	ALL	DIRN.	SUR	75	0	0	85.1	12.3	86.0
43301	ALL	DIRN.	SUR	47	0	0	57.6	-51.2	77.0
46027	ALL	DIRN.	SUR	38	0	0	37.6	-48.6	61.5
46045	ALL	DIRN.	SUR	40	0	0	87.0	18.8	89.0
51003	ALL	DIRN.	SUR	102	0	0	20.3	-30.2	36.3
51007	ALL	DIRN.	SUR	82	0	0	30.9	34.5	46.4
51303	ALL	DIRN.	SUR	21	0	0	45.7	-46.4	65.2
51310	ALL	DIRN.	SUR	48	0	0	39.3	-38.7	55.2

AVAILABILITY – SHIP/SYNOP – OCTOBER 1996 FIGURE 1

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 19223



									0				0			2		0	0	0		0	4							0		0			
4		4	0	0		[illegible]		[illegible]		1	4	2			4	4	4	0	24	39	8	3	6	0	8	8	4	8	24	7	8	8		0	0
12	10	7	6	0	8	13	0	8	[illegible]	[illegible]	[illegible]	42	26	16	43	54	29	170	200	182	86	73	50	49	14	20	12	7	19	33	16	9	11	10	10
11	18	20	17	22	37	35	46	30	0	8	25	22	8	7	6	22	[illegible]	685	[illegible]	372	154	117	104	102	132	146	93	124	64	81	66	34	32	17	8
16	14	15	14	15	57	39	31	61	[illegible]	98	[illegible]	51	22	22	23	41	295	387	[illegible]	456	[illegible]	93	430	61	62	83	44	57	130	182	144	80	35	19	17
6	6	7	9	13	30	42	40	69	84	83	24	17	19	27	29	37	247	162	137	146	[illegible]	92	87	54	50	15	80	168	238	257	[illegible]	45	12	8	6
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1	2	5	3	1	0	2	2	4	16	54	31	35	10	4	11	19	57	27	20	6	52	13	5	7	45	32	67	84	61	48	16	5	14	10	9
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				0	0	0	0	0	0	12	13	6	0	4			0	0				0		0						0		0	5		
											9	35	4	0			0				4	0		3	6	0	1	0	3	0		3			
														3	3		4		1															4	
																		3											0						

TABLE 2

MONITORING OF MARINE SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - DRIFTING BUOYS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures			
Period		:One calendar month.	
Data monitored		:Reports from each unique identifier for drifting buoys.	
Standard of comparison		:Background field from Bracknell global model.	
Position		:Average latitude and longitude for period.	
Observation times		:00, 06, 12, 18 UTC	
Elements monitored		:Mean sea level pressure (hPa). :Wind speed (m s^{-1}). :Wind direction (degrees).	
Parameters monitored			
	:NOBS	:Number of observations received excluding duplicates.	
	:NGE	:Number of observations with gross errors.	
	:PGE	:Percentage of observations with gross errors.	
	:SD	:SD of difference of observations from background values excluding those with gross errors.	
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. a positive bias indicates the observation is veered to the background.**	
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.	
GROSS ERROR LIMIT	:15 hPa :25 m s^{-1}	(pressure) (vector wind)	
SELECTION CRITERIA :	NOBS	≥ 20 , and one or more of the following:	
	1.¦bias¦	≥ 4 hPa ≥ 5 m s^{-1} ≥ 30 degrees	(pressure), (wind speed), (direction).
	2.SD	≥ 6 hPa ≥ 80 degrees	(pressure), (direction).
	3.PGE	≥ 25.	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
15904	-43.0	29.7	ALL	MSLP	SUR	199	0	0	1.9	-4.4	4.8
16941	-38.2	50.2	ALL	MSLP	SUR	227	40	18	5.7	5.3	7.8
25569	82.9	84.2	ALL	MSLP	SUR	641	559	87	4.9	7.6	9.1
33521	-35.6	-47.2	ALL	MSLP	SUR	160	6	4	4.3	7.3	8.5
33902	-43.8	-34.7	ALL	MSLP	SUR	150	1	1	3.6	-7.0	7.8
33908	-35.8	-45.2	ALL	MSLP	SUR	226	10	4	7.5	1.7	7.7
33909	-37.9	-27.9	ALL	MSLP	SUR	249	10	4	7.4	-3.8	8.3
33945	-42.1	-35.1	ALL	MSLP	SUR	263	20	8	4.7	5.1	7.0
44728	63.9	-12.7	ALL	MSLP	SUR	54	53	98	0.0	6.6	6.6
46609	34.6	-124.1	ALL	MSLP	SUR	47	46	98	0.0	-11.8	11.8
46612	38.5	-134.8	ALL	MSLP	SUR	138	7	5	7.0	3.3	7.7
46614	37.2	-125.7	ALL	MSLP	SUR	139	134	96	0.6	-12.1	12.1
46615	40.2	-128.9	ALL	MSLP	SUR	127	103	81	0.6	-13.5	13.5
51665	6.6	-160.6	ALL	MSLP	SUR	48	48	100	0.0	0.0	0.0
54911	-30.3	-131.6	ALL	MSLP	SUR	60	7	12	5.7	7.1	9.0
54929	-38.9	-115.0	ALL	MSLP	SUR	74	45	61	0.9	-13.8	13.8
55516	-15.2	100.2	ALL	MSLP	SUR	287	0	0	1.2	-4.2	4.4
55907	-36.0	169.9	ALL	MSLP	SUR	39	0	0	1.9	-5.5	5.9
56919	-51.1	140.5	ALL	MSLP	SUR	290	33	11	6.2	1.1	6.3
63666	84.1	101.1	ALL	MSLP	SUR	71	49	69	6.6	3.9	7.7
WIND SPEED											
44513	53.4	-51.2	ALL	SPEED	SUR	289	0	0	2.6	-5.4	6.0
44775	52.9	-35.8	ALL	SPEED	SUR	85	10	12	4.8	12.2	13.1
WIND DIRECTION											
46553	52.4	-130.0	ALL	DIRN.	SUR	112	0	0	48.2	-33.9	58.9
91874	8.7	172.2	ALL	DIRN.	SUR	28	0	0	15.2	-31.7	35.2

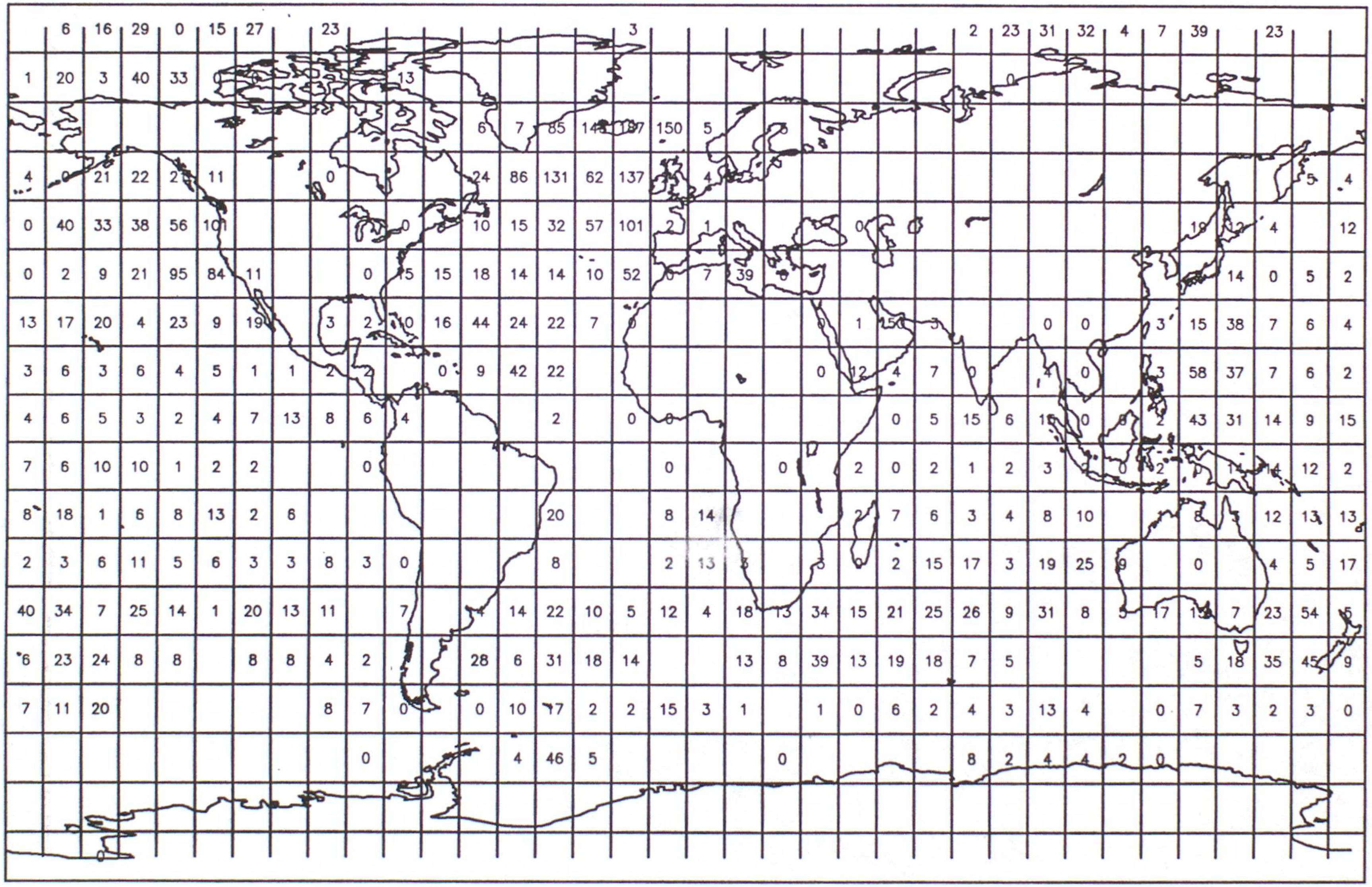
AVAILABILITY – DRIBU – OCTOBER 1996

FIGURE 2

MAIN HOURS ONLY

10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS

TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS = 5051



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1 20 3 40 33 0 13 0
6 7 85 148 137 150 5 6
4 0 21 22 21 11 0 24 86 131 62 137 4 5 4
0 40 33 38 56 101 0 0 10 15 32 57 101 2 1 0 19 12 4 12
0 2 9 21 95 84 11 0 15 15 18 14 14 10 52 0 7 39 0 14 0 5 2
13 17 20 4 23 9 19 3 2 10 16 44 24 22 7 0 0 1 150 3 0 0 3 15 38 7 6 4
3 6 3 6 4 5 1 1 2 2 0 9 42 22 0 12 4 7 0 4 0 3 58 37 7 6 2
4 6 5 3 2 4 7 13 8 6 4 2 0 0 0 5 15 6 15 0 8 2 43 31 14 9 15
7 6 10 10 1 2 2 0 0 0 2 0 2 1 2 3 2 0 2 0 14 14 12 2
8 18 1 6 8 13 2 6 20 8 14 2 7 6 3 4 8 10 1 8 3 12 13 13
2 3 6 11 5 6 3 3 8 3 0 8 2 13 3 3 0 2 15 17 3 19 25 9 0 4 5 17
40 34 7 25 14 1 20 13 11 7 4 14 22 10 5 12 4 18 13 34 15 21 25 26 9 31 8 5 17 13 7 23 54 5
6 23 24 8 8 8 8 4 2 28 6 31 18 14 13 8 39 13 19 18 7 5 5 18 35 45 9
7 11 20 8 7 0 0 10 17 2 2 15 3 1 1 0 6 2 4 3 13 4 0 7 3 2 3 0
0 4 46 5 0 8 2 4 4 2 0

TABLE 3

MONITORING OF LAND SURFACE OBSERVATIONS
MONTHLY SUSPECT LIST - SYNOPS & AUTOSYNOPS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for synops & autosynops.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00, 06, 12, 18 UTC
Elements monitored		:Mean sea level pressure (hPa).
Parameters monitored	:HT(m)	:Station height (in metres) as given in WMO No. 9 Vol A
	:RP	:Pressure reporting practice M=mean sea level pressure (hPa) reported. S=Station level pressure reported. 8=Geopotential height (m) of 850 hPa surface reported. 7=Geopotential height (m) of 700 hPa surface reported.
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:%REJ	:Percentage of observations flagged.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors.
GROSS ERROR LIMIT	:15 hPa	(pressure)
SELECTION CRITERIA	:NOBS	≥ 20 ,and one or more of the following:
	1.¦bias¦	≥ 4 hPa
	2. SD	≥ 6 hPa
	3.PGE	≥ 25.

N.B. For stn ht ≥ 500m, mslp is that calculated from station level pressure where available.
For stn ht < 500m, mslp is that as reported by the station where available.

WMO REGION 1:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
60445	36.2N	5.4E	1081	S8	107	2	2	5	0.9	4.5	4.6
60468	35.6N	6.2E	1052	S8	109	108	99	0	0.0	14.3	14.3
60511	35.3N	1.4E	1127	S8	104	104	100	0	0.0	0.0	0.0
60535	34.7N	3.3E	1144	S8	82	5	6	4	1.0	-6.1	6.2
60571	31.6N	2.2W	773	S8	114	0	0	2	1.4	-4.3	4.5
60670	24.6N	9.5E	1054	S8	105	0	0	85	1.6	7.8	8.0
61233	15.2N	7.3W	265	M	56	0	0	0	0.9	-4.5	4.6
62805	11.8N	34.4E	470	M	35	0	0	9	1.6	-4.0	4.3
63330	13.5N	39.5E	2212	MS	50	1	2	2	0.6	-5.6	5.6
63333	11.1N	39.7E	1916	MS	71	2	3	4	1.1	7.0	7.1
63402	7.7N	36.8E	1577	M	72	3	4	100	0.9	-13.3	13.3
63451	8.7N	39.0E	1876	MS	55	0	0	0	1.2	-4.7	4.9
63453	8.8N	39.8E	1062	S	50	0	0	0	1.3	11.8	11.9
63478	5.1N	44.6E	320	MS	49	1	2	51	1.4	6.7	6.8
68014	19.6S	18.1E	1411	S8	90	0	0	24	1.2	-5.3	5.4
68038	20.5S	26.0E	903	8	78	0	0	3	1.4	4.1	4.3
68442	29.1S	26.3E	1354	S8	122	0	0	3	1.3	-5.2	5.4
68488	28.4S	31.1E	1279	S8	76	76	100	0	0.0	0.0	0.0
68752	32.8S	27.4E	524	S8	102	0	0	3	1.2	-8.3	8.4

WMO REGION 2:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
30554	54.5N	113.6E	995	MS	58	0	0	81	1.4	9.8	9.9
31421	52.7N	137.5E	60	M	74	0	0	99	1.9	-7.9	8.1
35173	51.6N	69.8E	620	M	50	50	100	0	0.0	0.0	0.0
40701	39.3N	44.4E	1470	MS	92	0	0	5	1.3	7.0	7.1
40743	36.2N	57.7E	941	MS	119	0	0	16	1.4	-4.5	4.7
40762	35.3N	59.2E	1333	MS	120	24	20	81	1.0	-13.2	13.2
40763	35.2N	58.5E	1060	MS	47	0	0	0	1.4	-5.4	5.6
40783	32.4N	49.7E	1972	MS	92	0	0	0	1.7	-5.7	5.9
40789	33.8N	55.1E	921	MS	82	1	1	5	2.3	8.9	9.2
40798	32.3N	50.9E	1991	MS	92	2	2	2	1.5	-7.2	7.4
40836	30.8N	51.7E	1880	MS	87	0	0	6	1.3	8.9	9.0
40859	29.0N	53.7E	1383	MS	89	3	3	6	1.2	9.4	9.5
41254	23.1N	57.7E	1755	S8	92	92	100	0	0.0	0.0	0.0
41396	16.0N	48.9E	700	MS	24	0	0	4	1.6	7.0	7.2
41466	13.7N	44.1E	1385	8	28	0	0	11	2.2	-6.7	7.1
44416	28.6N	81.6E	720	MS	57	1	2	7	2.7	4.1	4.9
44477	27.0N	87.4E	1445	S8	51	50	98	0	0.0	-9.5	9.5
47022	40.8N	128.2E	1206	S	109	4	4	27	1.6	4.0	4.3
51334	44.6N	82.9E	321	M	120	0	0	17	2.8	4.0	4.9
52602	38.8N	93.4E	2734	S	119	0	0	0	2.4	-4.9	5.5
56287	30.0N	103.0E	629	M	120	0	0	30	1.4	4.7	4.9
56444	28.5N	98.9E	3488	S	115	115	100	0	0.0	0.0	0.0
56462	29.0N	101.5E	2994	S	105	0	0	5	2.2	7.5	7.8
57006	34.6N	105.8E	1143	M	120	0	0	1	2.2	4.0	4.6

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
80099	7.1N	70.7W	128	M	48	0	0	0	1.0	-5.7	5.8
82704	7.6S	72.7W	170	MS	68	0	0	1	1.9	-4.3	4.7
83214	10.3S	54.9W	285	M	44	0	0	7	2.7	-5.5	6.1
83235	12.4S	46.4W	660	MS	71	0	0	4	1.1	6.8	6.9
83295	13.4S	39.9W	755	MS	46	1	2	80	0.6	-4.1	4.1
83332	14.1S	46.4W	950	MS	77	26	34	0	0.9	13.8	13.8
83361	15.6S	56.1W	179	MS	70	0	0	1	1.8	4.7	5.0
83408	14.3S	43.8W	556	MS	64	2	3	6	1.6	10.2	10.3
83423	16.7S	49.3W	729	MS	77	0	0	3	1.2	-4.9	5.0
83488	17.8S	42.9W	1097	MS	61	61	100	0	0.0	0.0	0.0

WMO REGION 3:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
83531	18.6S	46.5W	896	MS	58	0	0	2	1.3	-6.6	6.7
83543	18.8S	41.9W	277	M	28	1	4	93	2.2	4.6	5.1
83587	19.9S	43.9W	850	MS	70	0	0	4	2.4	-7.9	8.3
83689	21.3S	43.8W	1171	MS	46	1	2	7	1.0	4.5	4.6
83704	22.3S	53.9W	369	MS	57	0	0	35	4.5	-6.2	7.7
83773	23.1S	48.9W	793	MS	37	0	0	3	1.1	-5.4	5.5
83836	25.5S	50.6W	837	MS	77	1	1	1	1.4	-4.7	4.9
83916	28.2S	51.5W	806	MS	67	0	0	3	1.3	-4.8	5.0
84401	5.2S	80.6W	55	MS	111	0	0	10	1.7	6.1	6.3
84455	6.5S	76.4W	282	MS	87	0	0	0	1.5	6.0	6.2
84472	7.1S	78.5W	2622	S	51	0	0	2	1.2	-5.5	5.6
84501	8.1S	79.0W	30	MS	114	1	1	10	1.4	6.4	6.6
84542	9.4S	77.6W	2760	S	48	1	2	0	2.0	5.1	5.5
84628	12.0S	77.1W	13	MS	120	0	0	0	1.1	4.2	4.3
84686	13.6S	72.0W	3249	S	119	0	0	7	1.8	-6.3	6.6
84782	18.1S	70.3W	469	MS	116	0	0	0	1.8	10.4	10.6
85264	18.5S	64.1W	1998	S	37	0	0	0	1.7	-10.9	11.0
85406	18.3S	70.3W	58	M	124	0	0	1	1.5	8.8	8.9
85418	20.5S	70.2W	48	M	118	0	0	0	1.4	5.7	5.9
85442	23.4S	70.4W	135	M	124	0	0	1	1.4	5.3	5.5

WMO REGION 4:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
76118	30.4N	109.7W	1040	MS	42	0	0	5	1.0	-10.1	10.1
76539	22.1N	101.0W	1870	MS	101	1	1	3	1.1	-4.2	4.3
76551	21.7N	106.5W	5	MS	27	1	4	63	1.4	-12.2	12.3
76625	20.6N	100.4W	1813	MS	32	1	3	97	1.1	-7.0	7.1
76632	20.1N	98.7W	2417	MS	47	0	0	94	1.0	-5.4	5.5
76634	20.1N	98.4W	2135	MS	93	2	2	74	1.4	-4.7	4.9
76658	19.2N	103.7W	494	MS	40	0	0	0	1.4	5.1	5.3
76762	17.5N	99.5W	1865	MS	94	94	100	0	0.0	0.0	0.0
76773	17.8N	97.8W	1680	MS	30	0	0	10	1.1	7.8	7.9
76775	17.1N	96.7W	1550	MS	67	0	0	1	0.9	4.2	4.3

WMO REGION 5:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
91339	5.5N	153.8E	3	MS	46	0	0	2	1.5	-5.2	5.4

WMO REGION 6:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
01245	62.6N	9.7E	630	MS	91	1	1	4	0.8	-5.7	5.8
02045	67.8N	20.4E	408	M	66	66	100	0	0.0	0.0	0.0
08221	40.5N	3.6W	633	MS	121	0	0	2	1.0	6.2	6.3
11024	48.4N	15.4E	860	S8	120	10	8	3	0.8	-13.6	13.6
11916	49.0N	19.6E	2012	S	123	31	25	1	1.3	-0.8	1.5
16020	46.5N	11.3E	1461	MS	83	83	100	0	0.0	0.0	0.0
16614	40.4N	21.3E	604	MS	113	0	0	4	1.1	-7.1	7.2

ANTARCTIC:

STATION	LAT	LONG	HT(M)	RP	NOBS	NGE	PGE	%REJ	SD	BIAS	RMS
89314	84.6S	115.8W	1463	S	84	0	0	0	3.8	-4.4	5.8
89577	75.9S	71.5E	2356	S	94	0	0	0	3.0	4.0	5.0
89664	77.9S	166.7E	24	MS	110	2	2	2	2.5	-7.7	8.1
89744	74.0S	43.0E	3353	S	81	1	1	0	2.3	7.4	7.7
89774	73.4S	76.8E	2565	S	96	0	0	0	2.6	5.4	6.0
89816	66.7S	112.9E	1375	S	48	48	100	0	0.0	0.0	0.0
89860	74.2S	160.3E	1772	S	77	3	4	45	2.5	-10.7	11.0

TABLE 4

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Statistics for each airline carrier.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :All hours combined.

Level(s) monitored :70.0 - 500.0 hPa

Elements monitored :TEMP in °C ; WIND in m s^{-1}

Parameters monitored

:N REP. :Number of observations received excluding duplicates.

:PG :Percentage of observations with gross errors.

:PR :Percentage of observations rejected by quality control including rejections from the duplicate check.

:PC :Percentage of observations with calm winds.

:RMS :Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.

:BIAS :Mean difference of observations from background values excluding those with gross errors in Temperature & Wind Speed.

GROSS ERROR LIMITS :10.0 °C ; 60 m s^{-1} Vector Wind

SELECTION CRITERIA :N REP $\geq$ 20

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAA	142	0	0	1.8	0.7	142	0	3	2	6.6	1.0
AAL	5758	0	1	1.7	0.1	5766	0	2	0	8.2	1.1
AAN	330	0	5	1.8	-0.2	314	0	6	0	8.0	0.4
AAR	1857	1	1	1.7	0.0	1873	0	3	0	9.2	0.7
ACA	1546	0	1	2.0	0.2	1580	0	2	0	8.1	0.3
ACI	23	4	9	1.7	0.8	22	0	14	0	13.7	1.8
AEA	673	1	100	3.1	1.7	647	0	4	0	9.6	1.1
AEL	804	3	6	2.0	0.1	808	0	4	0	8.9	0.6
AFL	262	1	100	2.9	1.4	263	0	6	2	9.0	0.8
AFR	1441	1	4	1.8	-0.1	1465	0	4	0	8.1	0.7
AIH	217	0	2	2.0	0.2	213	0	4	0	10.5	0.5
AJM	52	2	8	2.1	-0.2	57	0	4	0	9.7	0.0
AMT	368	0	1	1.6	0.9	368	0	3	1	7.2	0.6
AMX	261	2	3	1.6	0.1	266	0	4	0	9.7	0.9
ANA	897	1	1	1.8	-0.3	894	0	2	0	8.9	0.2
ANZ	2481	2	3	2.0	-0.2	2453	0	2	0	8.1	0.9
AOM	395	1	2	2.0	1.1	397	0	2	0	7.7	0.5
ARP	144	1	3	2.0	1.3	142	0	6	3	10.6	0.4
ATN	51	0	12	2.7	-0.5	50	2	98	0	10.1	2.0
AUA	99	1	2	1.8	-0.7	101	0	1	0	7.9	1.6
AVA	310	2	4	1.7	0.3	309	0	5	0	9.1	0.8
AVN	39	0	0	1.2	-0.1	39	0	0	0	8.4	1.6
AZA	558	0	4	2.4	0.8	567	0	3	0	8.2	1.6
BAL	724	0	12	1.6	0.0	731	0	14	0	9.6	0.6
BAW	1831	0	3	1.9	-0.1	1843	0	4	0	8.3	1.0
BBB	49	0	2	1.6	-0.4	47	0	6	0	7.3	1.9
BWA	344	2	6	3.4	2.8	346	0	7	1	10.2	0.5
CAL	1856	1	1	1.7	-0.1	1873	0	3	1	9.1	0.4
CCA	139	0	1	2.0	0.3	164	0	10	0	14.6	-2.2
CDN	2626	0	1	2.0	0.5	2645	0	2	0	8.1	0.4
CES	212	0	1	1.6	0.5	215	0	4	0	11.1	-1.1
CFG	971	1	2	1.9	-0.9	969	0	3	0	8.8	0.3
CKS	236	0	99	2.5	0.9	238	0	4	0	7.9	0.7
CKT	140	0	6	1.9	0.8	139	0	9	0	8.4	0.1
CLI	122	0	2	2.3	0.3	121	0	2	0	7.0	1.0
CLX	253	0	2	2.2	-0.6	256	0	2	0	7.5	0.3
CMI	733	1	2	1.9	0.5	744	0	3	1	8.3	1.3
CMM	357	1	2	1.7	-0.1	358	0	2	0	7.6	1.0
COA	981	1	2	1.8	0.6	980	0	2	1	8.2	0.6
CPA	66	0	2	1.6	-0.4	76	1	4	0	9.4	0.3
CRL	375	0	2	1.8	0.8	379	0	3	1	8.7	0.5
CSA	52	0	2	2.0	-0.6	51	0	4	2	7.1	1.5
CTM	35	3	14	1.4	0.2	34	3	15	0	9.0	1.9
CUB	369	1	100	2.7	1.7	369	0	9	0	10.1	1.4
DAF	34	0	3	1.7	-1.2	34	0	6	0	10.1	-0.7
DAL	5653	1	2	2.1	0.7	5232	0	2	0	8.4	0.8
DHL	484	6	100	4.0	-1.4	474	0	83	0	10.0	0.1
DLH	4010	1	8	2.0	0.4	4013	0	11	2	8.5	0.9
DOA	102	0	4	1.9	-0.4	100	0	4	0	8.3	0.2
EIA	125	1	4	1.7	-0.2	123	0	7	2	9.6	1.7
EIN	26	0	4	2.2	0.7	26	0	4	0	9.2	1.9
ELY	112	0	12	2.1	-0.2	115	0	13	0	10.0	0.8
EVA	883	1	1	1.8	-0.2	915	0	2	0	9.3	0.3
EWW	172	0	100	2.7	0.4	170	1	100	0	15.4	3.1
FDX	1532	0	1	1.8	0.6	1556	0	2	0	8.7	0.1
FIN	340	0	2	2.0	0.6	338	0	3	0	9.0	0.9
FJI	489	3	4	1.8	0.5	481	0	1	0	7.7	0.8
FOM	89	4	2	2.2	1.3	101	0	100	0	13.5	-1.1
GAF	124	2	2	1.6	0.2	123	0	3	1	9.3	1.2

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
GFA	24	0	8	1.6	0.1	26	0	12	0	8.7	-0.4
GIA	191	1	1	1.4	0.4	193	0	4	0	9.4	1.0
GTI	55	0	0	1.7	0.5	53	0	4	0	10.5	-0.2
HAL	1566	0	1	1.5	0.5	1567	0	2	1	8.1	0.6
HLF	230	0	2	1.9	-0.4	222	0	2	0	9.0	0.3
HRH	32	3	6	1.6	0.8	31	0	6	0	13.2	-0.1
IBE	3363	1	18	2.0	0.5	3364	0	19	0	9.6	0.6
ICE	751	1	1	2.0	0.2	753	0	1	0	7.8	0.1
JAA	24	4	4	2.2	1.6	24	0	4	0	9.9	3.6
JAL	6322	0	1	1.8	0.3	6357	0	2	0	8.5	0.7
JAZ	123	2	1	1.8	1.3	123	0	0	0	7.5	0.7
KAL	3455	0	1	1.9	-0.2	3464	0	2	0	8.9	0.5
KLM	2530	0	1	1.8	0.3	2524	0	2	0	8.4	0.7
LDA	195	1	7	1.8	-0.8	194	0	6	0	7.7	0.9
LDI	151	0	19	1.8	-1.2	151	0	19	0	6.9	0.1
LIB	213	1	2	1.7	0.8	215	0	2	0	8.0	0.1
LKR	36	0	3	2.0	0.4	39	0	0	0	9.3	3.4
LOT	314	0	2	2.3	-1.2	311	0	1	0	7.5	0.4
LTU	717	0	3	1.7	0.3	698	0	5	0	8.7	0.6
MAS	313	1	2	1.8	-0.1	334	0	3	0	9.9	0.7
MDA	174	1	1	1.8	0.2	176	0	1	0	8.8	-0.7
MPH	786	0	1	1.9	-0.3	786	0	1	0	7.9	0.5
NCA	653	1	1	1.7	0.3	649	0	1	0	8.7	-0.2
NWA	10105	0	2	2.1	0.7	10153	0	2	0	8.5	0.6
OAL	27	0	4	2.3	1.3	27	0	4	0	6.9	1.4
PAC	144	0	6	2.0	0.8	149	0	6	0	7.0	1.3
PAL	1016	1	3	1.7	0.1	1018	0	4	1	10.4	0.6
PAO	184	1	4	1.8	0.0	184	1	4	0	8.0	0.3
PNL	118	0	0	2.2	1.0	119	0	1	0	10.7	1.5
QFA	986	1	2	1.8	0.3	989	0	3	1	8.1	1.0
RAF	207	0	1	1.7	0.3	209	0	4	0	10.5	1.8
RAM	26	0	4	2.3	-0.4	26	0	0	0	8.0	-0.4
RCH	425	4	97	3.2	0.8	451	0	97	0	13.6	1.9
RJA	75	0	3	2.3	0.5	75	0	1	0	8.5	0.9
RKA	83	1	2	1.7	-0.4	82	0	5	0	10.0	1.9
RON	29	0	0	1.9	0.0	29	0	0	0	5.6	0.2
RRR	215	1	18	2.7	-0.4	216	0	15	0	8.2	0.9
SAA	270	1	4	2.0	0.0	266	0	6	0	8.5	0.0
SAB	75	0	0	1.7	0.8	76	1	3	0	7.0	1.0
SAS	1165	0	2	2.4	0.6	1165	0	2	1	7.7	0.6
SCX	35	3	3	2.0	1.3	46	0	7	2	9.1	-1.4
SIA	1394	1	2	1.7	-0.6	1418	0	2	0	9.4	0.3
SLR	61	0	13	1.8	-0.4	61	0	16	0	7.8	0.3
SOL	58	0	0	1.4	0.4	58	0	0	0	6.2	1.3
SPP	51	0	16	1.9	0.3	51	0	14	0	6.8	0.9
SVA	99	0	3	2.1	0.7	102	0	21	0	12.7	2.1
SVV	34	3	0	3.4	2.5	34	0	9	0	12.7	2.7
SWR	234	0	3	2.0	0.3	232	0	4	0	8.5	1.2
TAP	657	1	3	1.5	-0.3	657	0	5	0	9.3	0.9
TEJ	78	0	15	1.9	0.0	78	0	18	0	10.0	0.8
THA	250	0	2	1.9	-0.4	255	0	4	0	9.2	0.3
THY	25	4	8	2.5	0.7	25	0	8	0	10.5	2.0
TOW	100	0	0	1.5	0.0	100	0	2	0	8.4	1.6
TSC	147	0	1	1.9	0.0	147	0	5	1	9.9	1.0
TWA	1789	0	2	1.9	0.2	1779	0	3	0	9.1	1.1
UAL	13020	1	2	1.9	-0.2	13092	0	2	0	8.0	0.6
ULE	222	0	1	2.0	0.9	220	0	1	0	8.3	0.9
UPS	1005	1	10	1.7	0.1	1025	0	11	0	8.6	0.9
USA	511	0	2	1.6	-0.2	508	0	2	0	8.3	1.2

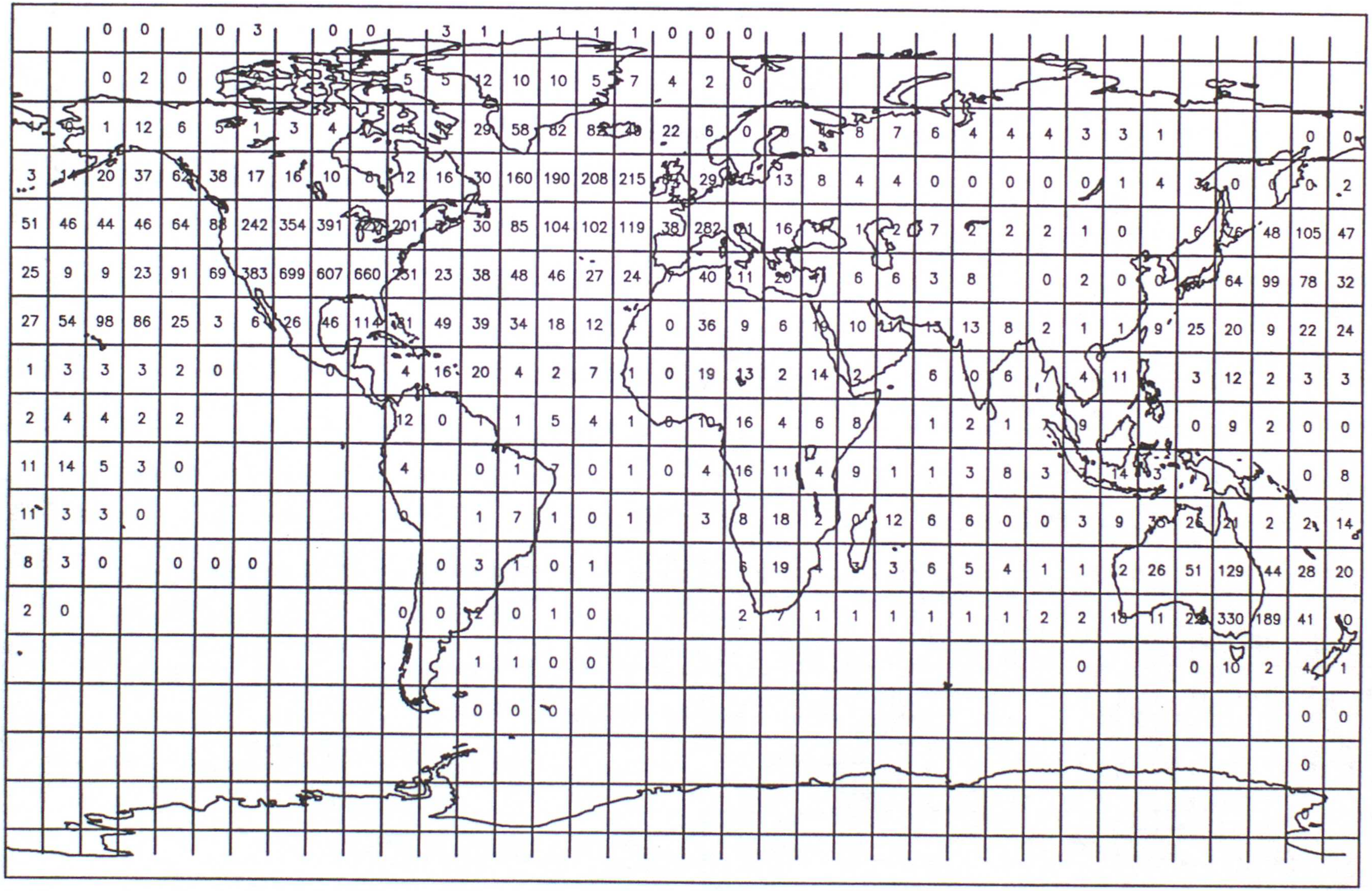
		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
VIA	483	1	3	1.5	1.0	487	0	6	2	8.3	0.5
VIR	261	0	1	1.6	-0.1	264	0	2	1	7.6	1.6
VRB	21	0	5	2.6	1.1	22	0	9	0	6.6	1.0
VRG	70	4	4	1.7	0.4	76	0	1	0	8.4	0.4
VSP	195	1	3	1.9	0.6	198	1	6	1	9.4	0.3
WOA	85	1	7	2.9	0.4	85	0	1	0	7.2	0.5
AN	24127	0	3	1.3	0.1	23957	0	3	0	7.1	0.9
BA	19167	0	7	1.2	0.5	19124	0	8	0	7.0	1.0
DL	98501	0	2	1.2	0.1	98501	0	0	0	6.5	1.0
FJ	35	3	6	1.8	0.7	35	0	3	0	6.2	2.2
IT	601	0	2	1.5	0.1	600	0	1	0	7.4	1.2
KL	9351	1	8	1.1	0.3	9348	0	8	0	7.5	0.9
LH	3772	0	3	1.5	0.4	3762	0	4	1	7.5	0.8
MK	4136	0	1	1.3	0.7	4122	0	1	0	8.0	1.6
NW	32784	0	1	1.3	0.2	32784	0	1	0	6.5	1.1
QF	4508	0	0	1.1	0.2	4502	0	1	0	6.8	0.6
SA	3494	0	40	1.5	0.9	3491	0	40	0	7.1	0.6
SV	1305	0	2	1.3	0.7	1301	0	88	0	7.3	1.4
N	482	1	4	2.7	0.8	496	0	4	0	10.2	1.1

MEAN DAILY COUNT OF AIRCRAFT 70 – 500 HPA

OCTOBER 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

FIGURE 3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0 2 0 5 5 12 10 10 5 7 4 2 0
1 12 6 5 1 3 4 29 58 82 82 22 6 0 8 7 6 4 4 4 3 3 1 0 0
3 14 20 37 62 38 17 16 10 12 16 30 160 190 208 215 29 13 8 4 4 0 0 0 0 1 4 0 0 2
51 46 44 46 64 88 242 354 391 201 30 85 104 102 119 38 282 16 2 7 2 2 2 1 0 6 48 105 47
25 9 9 23 91 69 383 699 607 660 231 23 38 48 46 27 24 40 11 20 6 6 3 8 0 2 0 0 64 99 78 32
27 54 98 86 25 3 6 26 46 114 81 49 39 34 18 12 0 36 9 6 10 13 8 2 1 1 9 25 20 9 22 24
1 3 3 3 2 0 0 4 16 20 4 2 7 1 0 19 13 2 14 2 6 10 6 4 11 3 12 2 3 3
2 4 4 2 2 12 0 1 1 5 4 1 0 10 16 4 6 8 1 2 1 9 0 9 2 0 0
11 14 5 3 0 4 0 1 7 0 1 0 4 16 11 4 9 1 1 3 8 3 14 3 0 8
11 3 3 0 0 1 7 1 0 1 3 8 18 2 0 12 6 6 0 0 3 9 30 26 21 2 21 14
8 3 0 0 0 0 0 3 1 0 1 6 19 4 3 3 6 5 4 1 1 2 26 51 129 44 28 20
2 0 0 0 2 0 1 0 2 7 1 1 1 1 1 1 2 2 18 11 23 330 189 41 10
1 1 0 0 0 0 10 2 4 1
0 0 0 0 0
0

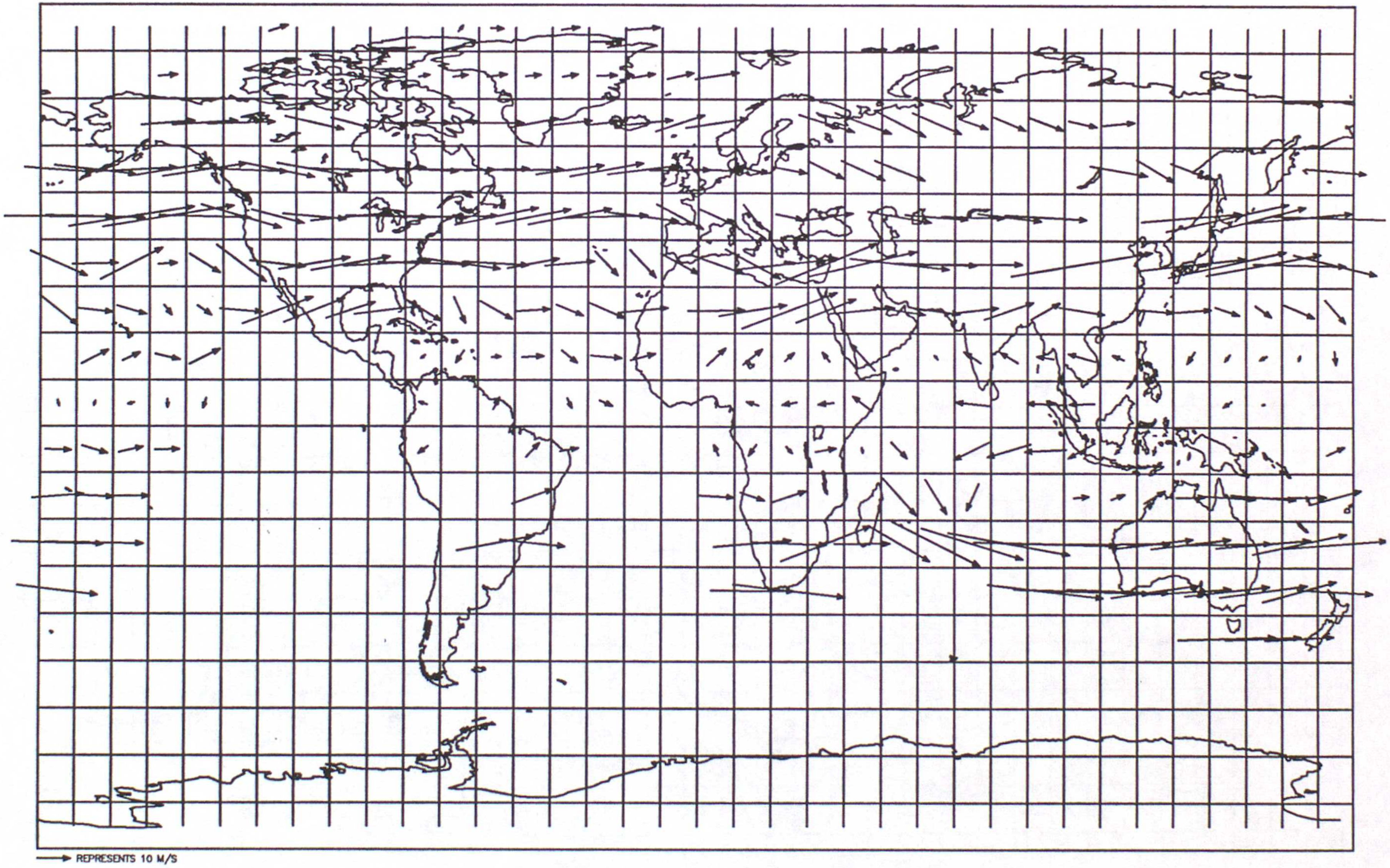
AIRCRAFT MEAN WINDS BETWEEN 70 AND 500 HPA

FIGURE 4

OCTOBER 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



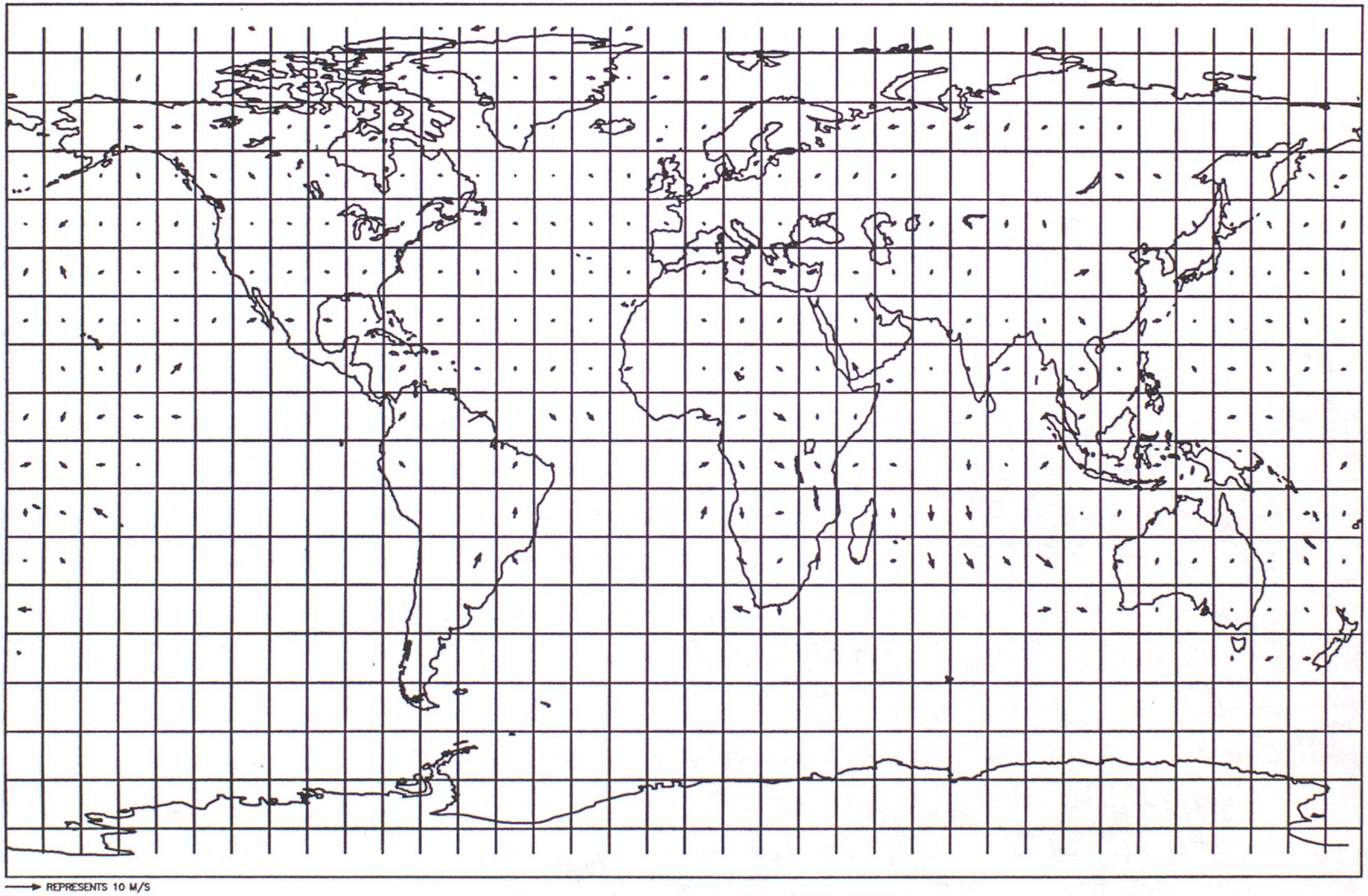
AIRCRAFT MEAN O–B WINDS BETWEEN 70 AND 500 HPA

FIGURE 5

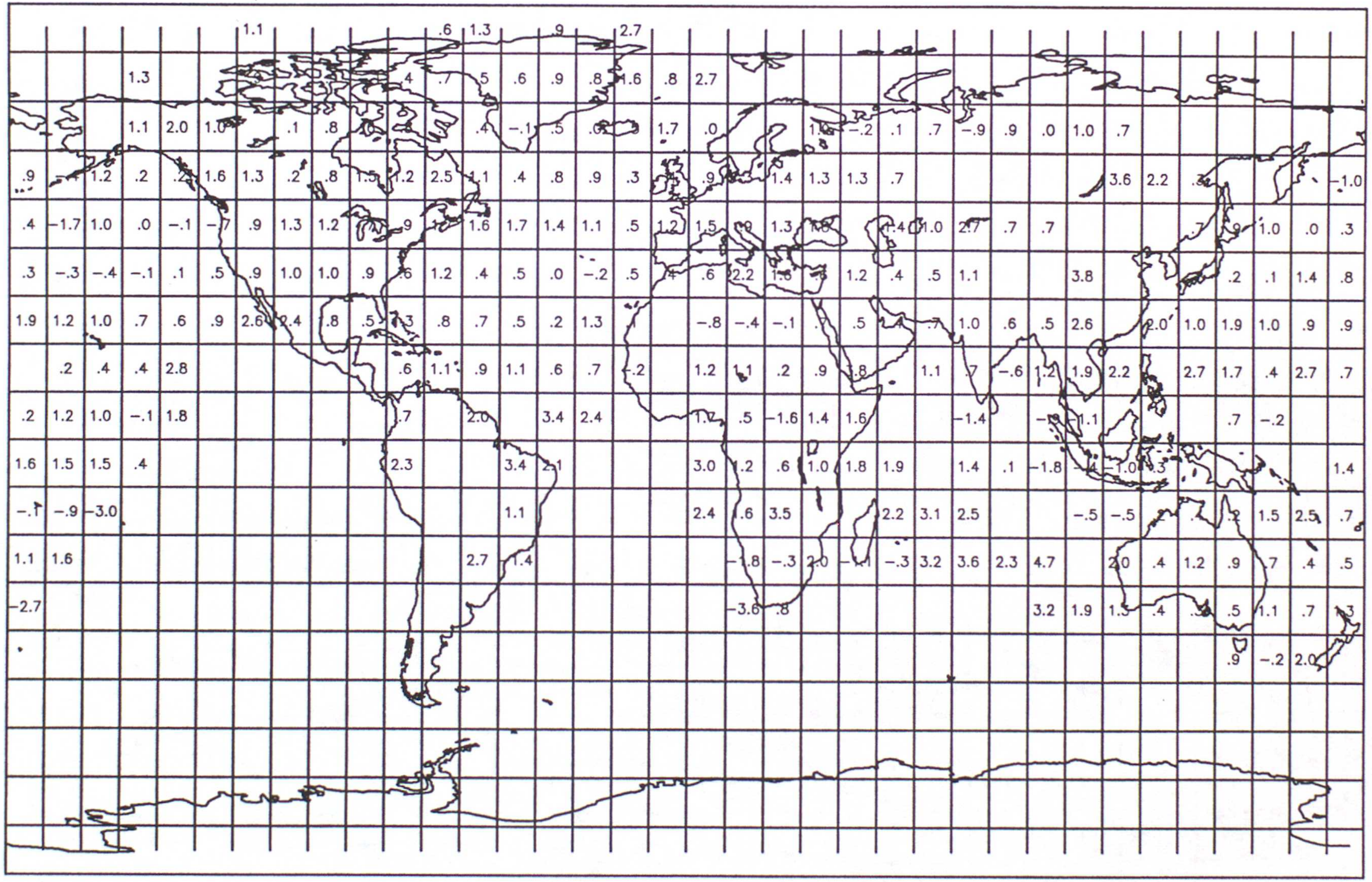
OCTOBER 1996

OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



AIRCRAFT : MEAN O–B SPEEDS (M/S) BETWEEN 70 AND 500 HPA FIGURE 6
OCTOBER 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE > 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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1.3 .4 .7 .5 .6 .9 .8 1.6 .8 2.7
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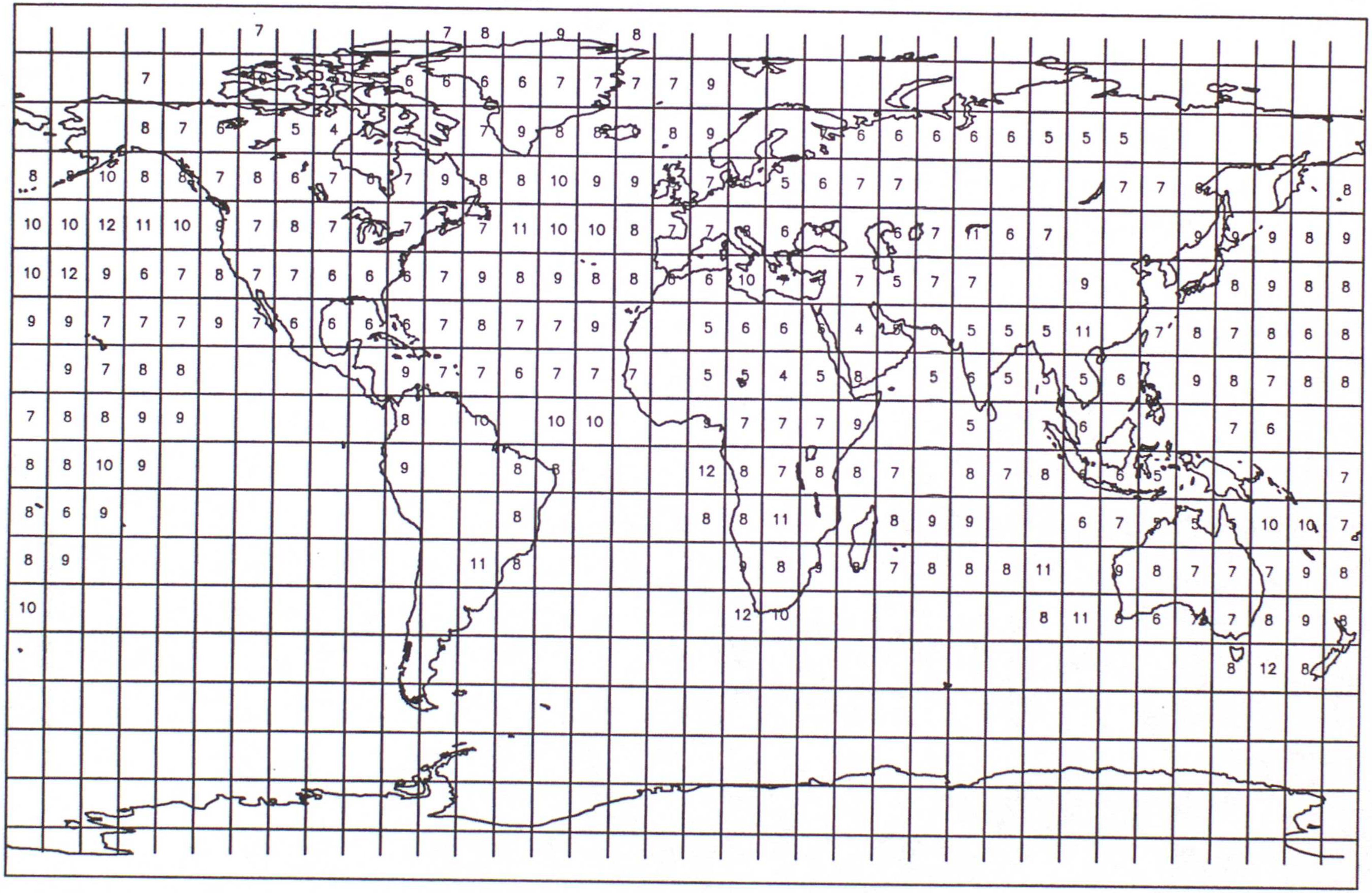
.9 1.2 .2 .2 1.6 1.3 .2 .8 1.5 1.2 2.5 1.1 .4 .8 .9 .3 .9 1.4 1.3 1.3 .7 3.6 2.2 .3 –1.0
.4 –1.7 1.0 .0 –.1 –.7 .9 1.3 1.2 .9 1.6 1.7 1.4 1.1 .5 1.2 1.5 .9 1.3 1.6 1.4 1.0 2.7 .7 .7 .7 .9 1.0 .0 .3
.3 –.3 –.4 –.1 .1 .5 .9 1.0 1.0 .9 .6 1.2 .4 .5 .0 –.2 .5 .6 2.2 1.5 1.2 .4 .5 1.1 3.8 .2 .1 1.4 .8
1.9 1.2 1.0 .7 .6 .9 2.6 2.4 1.8 .5 1.3 .8 .7 .5 .2 1.3 –.8 –.4 –.1 .5 1.4 .7 1.0 .6 .5 2.6 2.0 1.0 1.9 1.0 .9 .9
.2 .4 .4 2.8 .6 1.1 .9 1.1 .6 .7 –.2 1.2 1.1 .2 .9 1.8 1.1 .7 –.6 1.2 1.9 2.2 2.7 1.7 .4 2.7 .7
.2 1.2 1.0 –.1 1.8 .7 2.0 3.4 2.4 1.7 .5 –1.6 1.4 1.6 –1.4 –.9 1.1 .7 –.2
1.6 1.5 1.5 .4 2.3 3.4 2.1 3.0 1.2 .6 1.0 1.8 1.9 1.4 .1 –1.8 –.4 –1.0 .3 1.4
–.1 –.9 –3.0 1.1 2.4 1.6 3.5 2.2 3.1 2.5 –.5 –.5 .2 1.5 2.5 .7
1.1 1.6 2.7 1.4 –1.8 –.3 2.0 –1.1 –.3 3.2 3.6 2.3 4.7 2.0 .4 1.2 .9 .7 .4 .5
–2.7 –3.6 .8 3.2 1.9 1.5 .4 .3 .5 1.1 .7 1.3
.9 –.2 2.0

AIRCRAFT : RMS O–B VECTOR (M/S) BETWEEN 70 AND 500 HPA FIGURE 7
OCTOBER 1996
OBSERVATIONS WITH O–B VECTOR DIFFERENCE GREATER THAN 60 MPS EXCLUDED
VALUES ARE PRINTED WHERE > 30 OBS ARE PRESENT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8 7 6 5 4 7 9 8 8 8 9 6 6 6 6 6 5 5 5
8 8 10 8 8 7 8 6 7 6 7 9 8 8 10 9 9 7 6 5 6 7 7 7 7 8 8
10 10 12 11 10 9 7 8 7 7 7 11 10 10 8 7 7 8 6 6 7 11 6 7 9 9 9 8 9
10 12 9 6 7 8 7 7 6 6 6 7 9 8 9 8 8 6 6 10 7 8 7 5 7 7 9 8 9 8 8
9 9 7 7 7 9 7 6 6 6 6 7 8 7 7 9 5 6 6 6 4 5 6 5 5 5 11 7 8 7 8 6 8
9 7 8 8 9 7 7 6 7 7 7 5 5 4 5 8 5 6 5 5 5 6 9 8 7 8 8
7 8 8 9 9 8 10 10 10 9 7 7 7 9 5 6 7 6
8 8 10 9 9 8 8 12 8 7 8 8 7 8 7 8 6 6 5 7
8 6 9 8 8 8 11 8 9 9 6 7 5 5 5 10 10 7
8 9 11 8 9 8 9 8 7 8 8 8 11 9 8 7 7 7 9 8
10 12 10 8 11 8 6 7 7 8 9 8
8 12 8

TABLE 5

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from each unique identifier for radiosonde TEMPs.

Area monitored :90°N - 90°S, 180°W - 180°E.

Standard of comparison :Background field from Bracknell global model.

Observation times :00 UTC and 12 UTC.

Level(s) monitored :Standard levels between 1000.0 - 30.0 hPa

Element monitored :GEOPOTENTIAL HEIGHT IN metres

Parameters monitored :NUM OBS :Number of observations available at level shown during period.

:NUM GROSS :Number of gross errors at level shown duringperiod.

:% REJ :Percentage of observations rejected by quality control at level shown during period.

:SD :SD of difference of observations from background values at level shown excluding those with gross errors.

:BIAS :Mean difference of observations from background values at level shown excluding those with gross errors.

:RMS :Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

:NUM LEVELS :Number of levels satisfying selection criteria.

GROSS ERROR LIMITS :Defined in Appendix I.1

SELECTION CRITERIA : ≥3 levels with ≥10 observations and ≥ 100 m weighted RMS.

ONLY THE WORST LEVEL IS SHOWN WITH UNWEIGHTED RMS

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	SD	BIAS	RMS	NUM LEVELS
20674	00	Z	200	73/ 80	14	1	97.1	2.9	97.2	7
22217	12	Z	250	67/ 32	30	0	19.2	75.3	77.7	4
25563	00	Z	100	65/ 178	11	0	49.9	150.7	158.8	5
37018	00	Z	250	44/ 39	25	0	29.9	79.0	84.5	4
37018	12	Z	250	44/ 39	26	0	25.9	84.6	88.5	8
37985	00	Z	200	39/ 49	10	0	73.5	118.0	139.0	5
42182	00	Z	200	29/ 77	29	0	56.9	-53.4	78.1	6
42314	12	Z	400	27/ 95	18	0	48.1	-55.0	73.1	4
42369	00	Z	70	27/ 81	10	1	180.3	5.4	180.4	9
42369	12	Z	70	27/ 81	11	1	136.3	75.4	155.8	6
42379	00	Z	50	27/ 83	13	0	145.0	145.5	205.4	8
42379	12	Z	70	27/ 83	19	0	141.9	118.5	184.9	10
42492	00	Z	250	26/ 85	26	0	69.3	-45.7	83.0	8
42492	12	Z	50	26/ 85	19	0	167.7	16.3	168.5	8
42647	00	Z	200	23/ 73	20	0	64.8	-73.9	98.3	6
42701	00	Z	30	23/ 85	10	0	152.4	170.8	228.9	6
42724	12	Z	250	24/ 91	13	0	73.0	-78.6	107.3	6
42809	00	Z	50	23/ 88	16	0	139.5	45.6	146.8	5
42971	12	Z	50	20/ 86	15	0	170.6	-9.2	170.8	6
43003	12	Z	70	19/ 73	10	0	142.1	100.1	173.8	4
43014	00	Z	250	20/ 75	22	0	59.4	-48.6	76.7	5
43128	12	Z	30	17/ 78	11	1	149.9	209.1	257.3	6
43185	12	Z	100	16/ 81	18	0	95.4	45.8	105.8	4
43192	00	Z	250	15/ 74	19	0	52.2	-87.5	101.9	8
43192	12	Z	500	15/ 74	21	0	37.3	-41.7	55.9	7
43279	00	Z	200	13/ 80	17	0	101.5	-53.2	114.6	6
43279	12	Z	250	13/ 80	17	0	54.3	-83.8	99.9	5
43369	00	Z	200	8/ 73	12	0	58.4	-113.9	128.0	6
43369	12	Z	300	8/ 73	11	0	65.5	-55.8	86.1	4
43371	00	Z	70	8/ 77	14	0	92.1	-181.9	203.9	8
43371	12	Z	50	8/ 77	17	0	151.5	-57.2	161.9	7
48565	00	Z	1000	8/ 98	10	0	11.9	37.2	39.1	4
54337	00	Z	70	41/ 121	18	1	155.8	79.5	174.9	5
54497	12	Z	1000	40/ 124	2	0	47.0	-47.0	66.5	5
57679	00	Z	100	28/ 113	16	0	29.4	123.8	127.2	4
57679	12	Z	100	28/ 113	16	1	34.2	127.0	131.5	6
57972	00	Z	100	26/ 113	29	0	41.2	134.1	140.3	4
58238	00	Z	150	32/ 119	28	0	23.1	95.9	98.6	5
58424	00	Z	150	31/ 117	28	0	25.4	94.3	97.6	4
59981	00	Z	100	17/ 112	22	0	30.5	115.1	119.1	4
60360	12	Z	400	37/ 8	1	17	0.0	-159.0	159.0	4
60490	12	Z	250	36/ -1	12	9	59.3	-134.8	147.3	4
61902	12	Z	100	-8/ -14	14	0	78.1	149.6	168.8	5
62306	00	Z	70	31/ 27	13	3	140.6	125.4	188.4	5
62306	12	Z	200	31/ 27	27	1	70.2	60.6	92.8	4
62414	00	Z	50	24/ 33	25	1	134.7	130.9	187.8	5
68240	12	Z	150	-24/ 26	13	1	66.1	134.4	149.8	7
83612	12	Z	30	-20/ -55	13	1	43.4	173.8	179.1	5
89009	00	Z	400	-90/ 0	26	0	71.1	32.9	78.3	6
89664	12	Z	850	-78/ 167	23	0	17.1	-62.2	64.5	5
91557	12	Z	700	-18/ 168	19	8	11.8	-81.8	82.7	7
96237	00	Z	200	-2/ 106	18	0	71.9	-86.4	112.4	9

AVAILABILITY – TEMP – 500 HPA GEOPOTENTIAL – OCTOBER 1996
ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1301

FIGURE 8

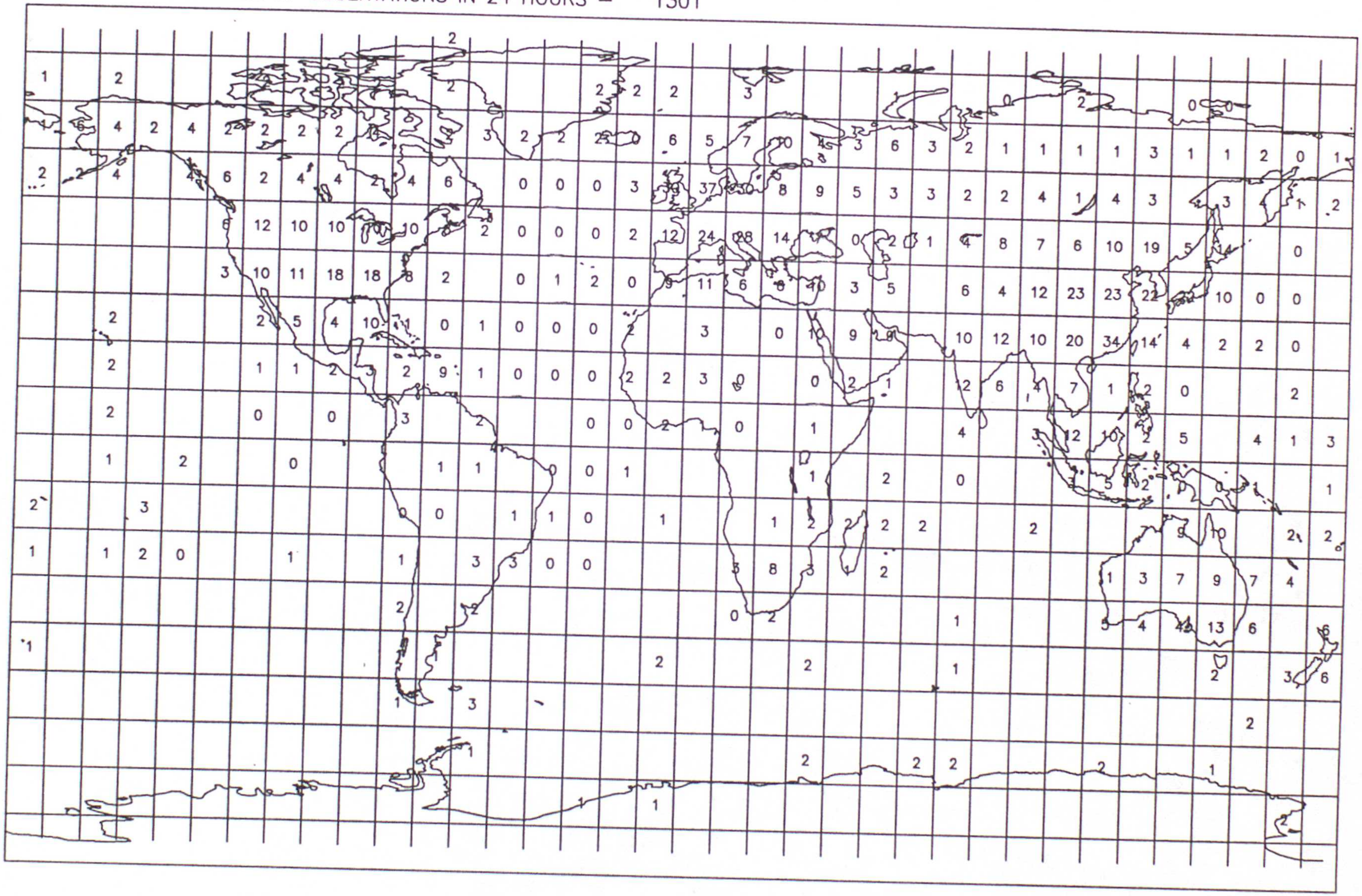


TABLE 6

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

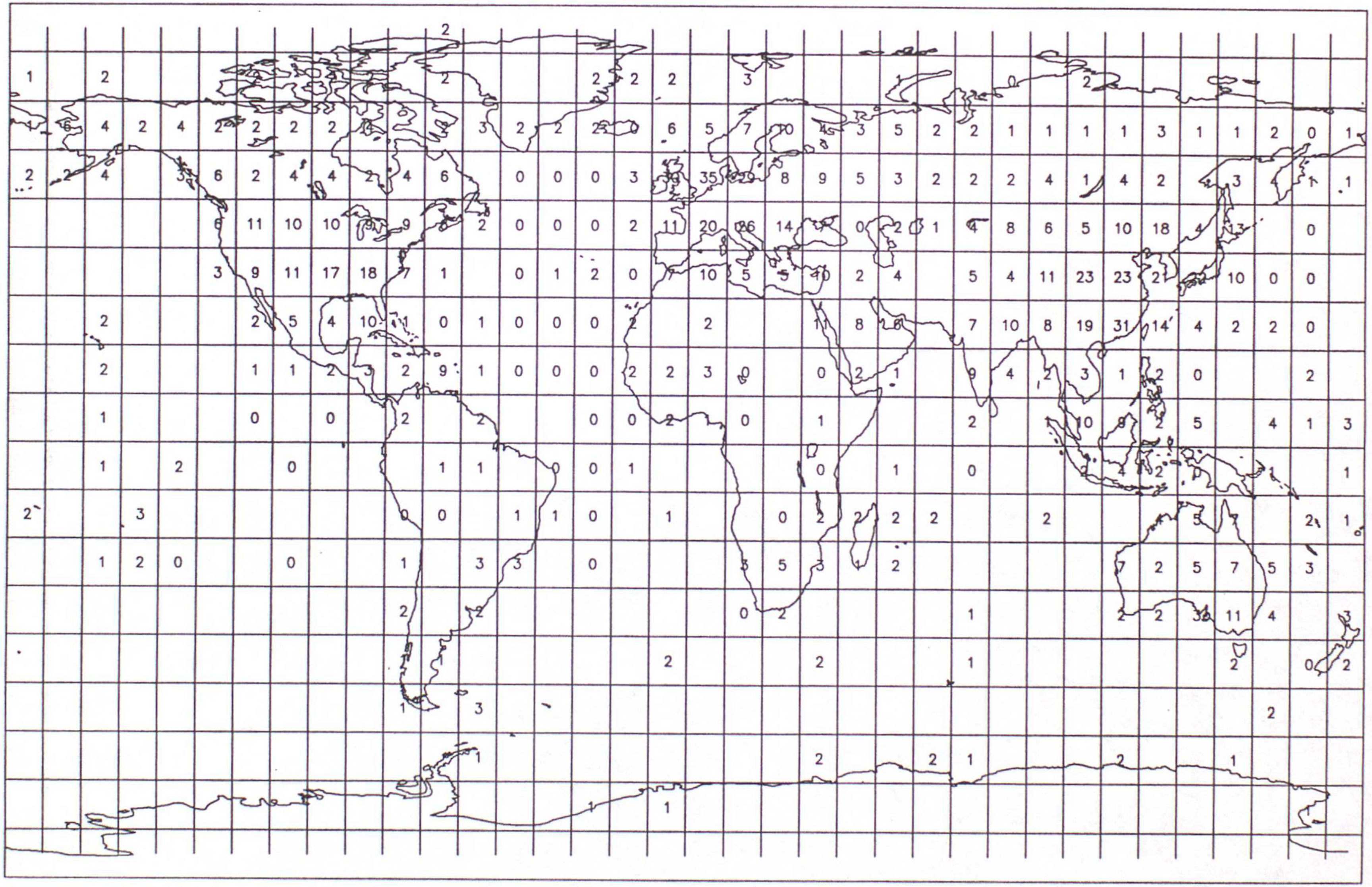
Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 1000.0 - 100.0 hPa
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored		
	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.
	:NUM LEVELS	:Number of levels satisfying selection criteria.
GROSS ERROR LIMITS	:Defined in Appendix I.2	
SELECTION CRITERIA	: ≥ 10 observations and ≥ 15 m s^{-1} RMS vector wind.	

ONLY THE STANDARD LEVEL BETWEEN 1000 - 100 hPa WITH HIGHEST RMS IS SHOWN

WMO IDENT	OBS TIME	ELM	LEV	LAT/LONG	NUM OBS	NUM GROSS	% REJ	UBIAS	VBIAS	RMS	LEVELS
47058	00	V	300	39/ 126	10	0	20	-2.2	-1.5	19.2	1
52836	00	V	100	36/ 98	24	0	29	13.6	-2.0	17.2	1
62019	12	V	250	31/ 17	10	1	63	-48.8	2.8	38.3	7

AVAILABILITY – TEMP/PILOT – 300 HPA WIND – OCTOBER 1996 FIGURE 9
ALL HOURS
10 DEGREE BOX AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS
TOTAL AVERAGE NUMBER OF OBSERVATIONS IN 24 HOURS – 1172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2 2 4 3 6 2 4 4 2 4 6 0 0 0 3 39 35 29 8 9 5 3 2 2 2 4 1 4 2 3 1 1
6 11 10 10 9 2 0 0 0 2 11 20 36 14 0 2 1 4 8 6 5 10 18 4 3 0
3 9 11 17 18 7 1 0 1 2 0 7 10 5 5 10 2 4 5 4 11 23 23 21 10 0 0
2 2 5 4 10 1 0 1 0 0 0 2 2 11 8 6 7 10 8 19 31 14 4 2 2 0
2 1 1 2 3 2 9 1 0 0 0 2 2 3 0 0 2 1 9 4 2 3 1 2 0 2
1 0 0 2 2 0 0 2 0 1 2 10 9 2 5 4 1 3
1 2 0 1 1 0 0 1 0 1 0 4 2 1
2 3 0 0 1 1 0 1 0 2 2 2 2 2 4 5 7 2 1
1 2 0 0 1 3 3 0 3 5 3 1 2 7 2 5 7 5 3
2 2 0 2 1 2 2 32 11 4 3
1 1 2 2 1 2 0 2
1 3 2
1 2 2 1 2 1
1 1 1

TABLE 7

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:90°N - 90°S, 180°W - 180°E.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:00 UTC and 12 UTC.
Level(s) monitored		:Standard levels between 500.0 - 150.0 hPa
Element monitored		:WIND DIRECTION in degrees
Parameters monitored		
	:NUM OBS	:Average number of observations at all levels.
	:BIAS	:Mean difference of observations from background values from all levels.
	:MAX SPREAD	:(For observation - background values) Maximum absolute difference of SD at any level from SD at all levels
	:SD	:SD of difference of observations from background values at all levels.

SELECTION CRITERIA :NUM OBS ≥ 5, and
ABSOLUTE BIAS ≥ 10°, with
SD < 30°, and
MAX SPREAD < 10°

WMO IDENT	OBS TIME	ELM	LAT/LONG	NUM OBS	BIAS	MAX SPREAD	SD
01241	00	DD	64/ 10	29	13.3	9.1	16.8
16144	00	DD	45/ 12	21	25.1	9.9	28.8
16144	12	DD	45/ 12	24	26.9	10.0	24.3
40265	00	DD	32/ 36	28	-39.7	3.6	28.4
41114	12	DD	18/ 43	14	-10.5	9.3	24.3
42874	12	DD	21/ 82	8	10.8	9.9	20.8
43295	00	DD	13/ 78	14	11.0	8.9	24.3
43333	00	DD	12/ 93	18	15.0	9.4	22.2
48601	12	DD	5/ 100	23	23.0	6.6	19.7
48615	00	DD	6/ 102	15	15.6	8.9	24.8
48615	12	DD	6/ 102	14	16.6	7.6	25.2
48657	00	DD	4/ 103	23	13.7	5.1	19.0
48698	00	DD	1/ 104	21	10.4	5.9	17.6
48855	00	DD	16/ 108	10	-11.8	9.0	19.3
55591	00	DD	30/ 91	25	-28.3	6.8	11.5
55591	12	DD	30/ 91	26	-28.2	8.0	14.0
62337	00	DD	31/ 34	22	10.1	2.7	7.5
72476	12	DD	39/-109	26	-10.5	2.9	10.4
96471	12	DD	6/ 116	20	34.5	6.0	26.2
96481	00	DD	4/ 118	25	15.9	6.0	19.7
96481	12	DD	4/ 118	22	28.5	1.7	23.5

MONITORING OF SATELLITE WINDS

MONITORING CENTRE: BRACKNELL

MONTH: October, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from GOES, METEOSAT, GMS, INSAT.

Standard of comparison :Background field from Bracknell global model.

Selection Criteria :number of observations > 10.

Data Extracted :Layer 701 - 1000 hPa
401 - 700 hPa
101 - 400 hPa

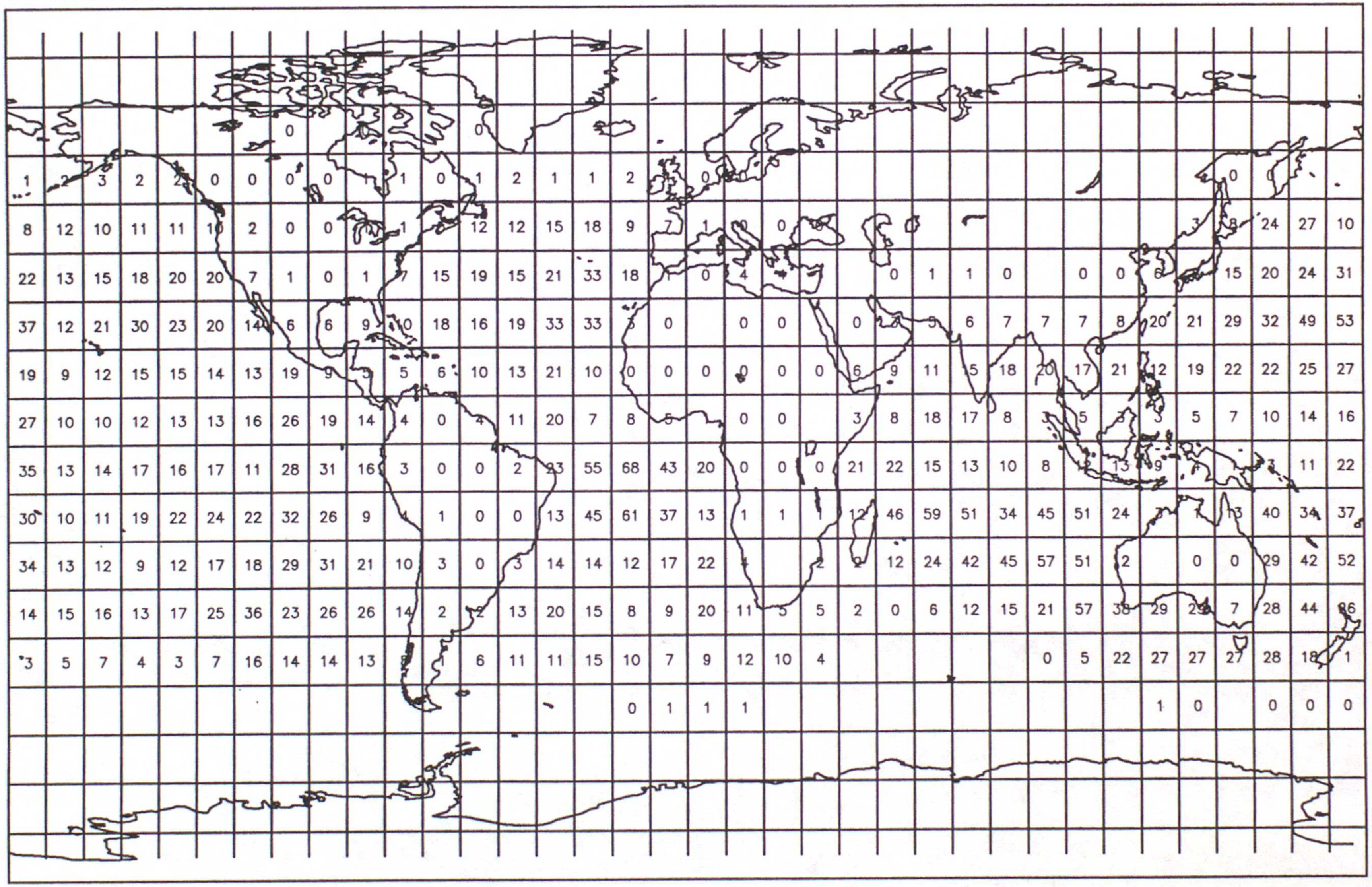
:Mean wind

:Mean observation minus background vector wind differences

:Mean observation minus background speed differences

:RMS of observation minus background vector differences

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 701 AND 1000 HPA FIGURE 10
OCTOBER 1996


0 0
1 2 3 2 2 0 0 0 0 1 1 0 1 2 1 1 2 0 0 0
8 12 10 11 11 10 2 0 0 1 12 12 15 18 9 7 1 0 0 0 3 8 24 27 10
22 13 15 18 20 20 7 1 0 1 7 15 19 15 21 33 18 1 0 4 0 1 1 0 0 0 6 15 20 24 31
37 12 21 30 23 20 14 6 6 9 10 18 16 19 33 33 3 0 0 0 0 3 5 6 7 7 7 8 20 21 29 32 49 53
19 9 12 15 15 14 13 19 9 3 5 6 10 13 21 10 0 0 0 0 0 0 6 9 11 15 18 20 17 21 12 19 22 22 25 27
27 10 10 12 13 13 16 26 19 14 4 0 4 11 20 7 8 5 0 0 3 8 18 17 8 3 5 3 3 5 7 10 14 16
35 13 14 17 16 17 11 28 31 16 3 0 0 2 23 55 68 43 20 0 0 0 21 22 15 13 10 8 12 13 9 3 11 22
30 10 11 19 22 24 22 32 26 9 4 1 0 0 13 45 61 37 13 1 1 1 12 46 59 51 34 45 51 24 7 1 13 40 34 37
34 13 12 9 12 17 18 29 31 21 10 3 0 3 14 14 12 17 22 4 2 2 12 24 42 45 57 51 2 0 0 29 42 52
14 15 16 13 17 25 36 23 26 26 14 2 2 13 20 15 8 9 20 11 5 5 2 0 6 12 15 21 57 38 29 29 7 28 44 36
3 5 7 4 3 7 16 14 14 13 8 1 6 11 11 15 10 7 9 12 10 4 0 5 22 27 27 27 28 18 1
0 1 1 1 1 0 0 0 0

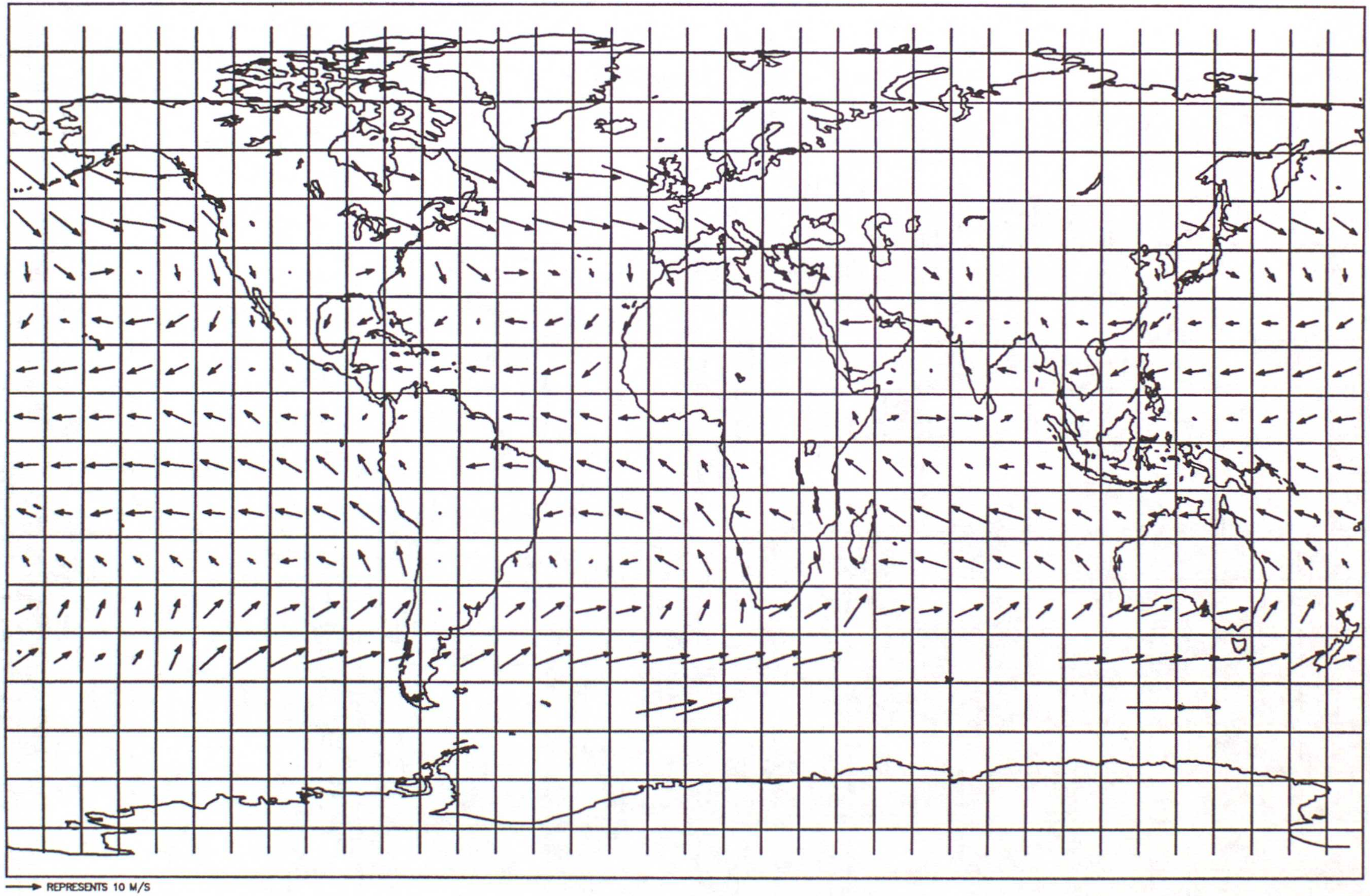
SATOB VECTOR MEAN WINDS BETWEEN 701–1000 HPA

OCTOBER 1996

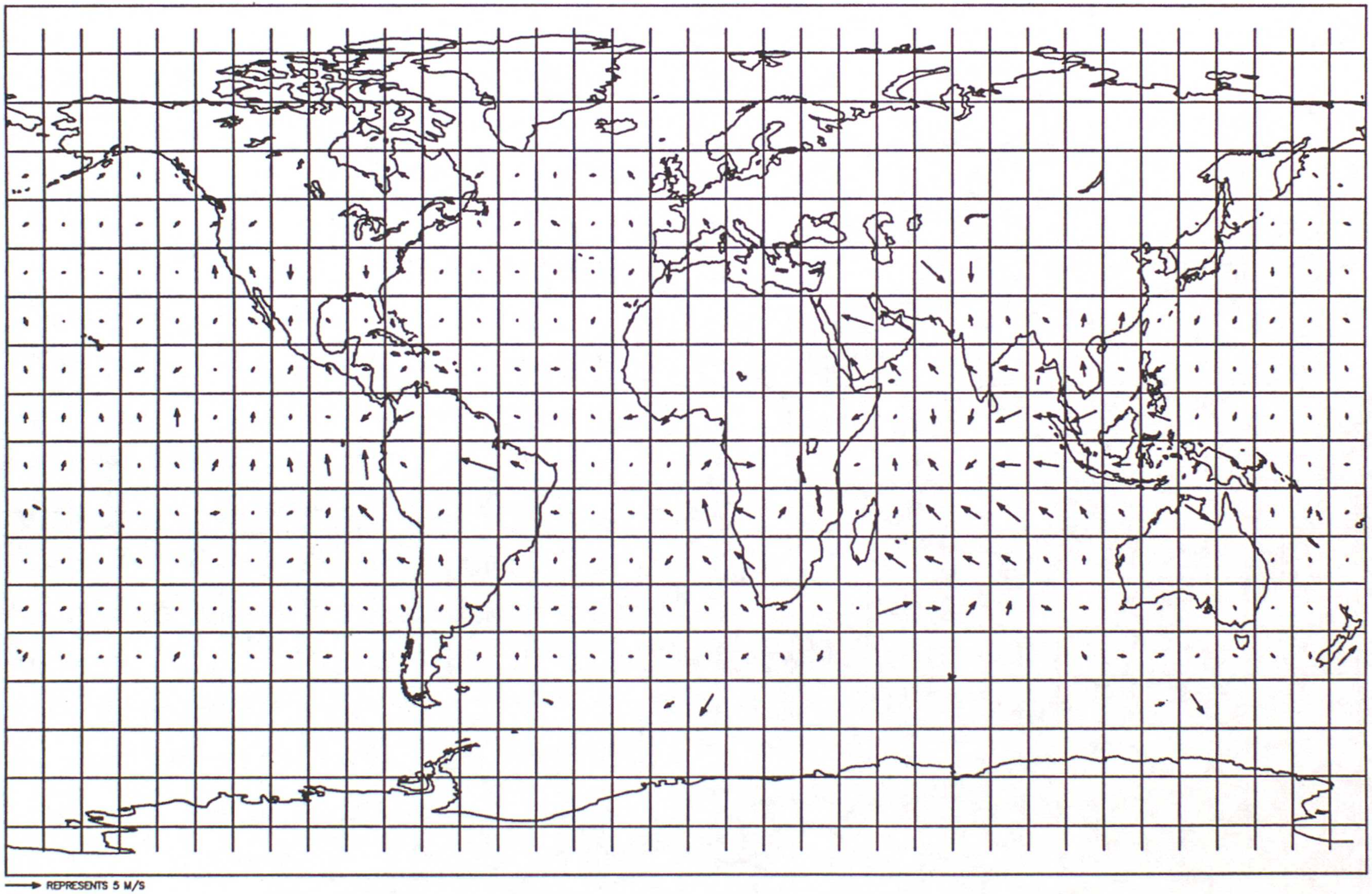
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

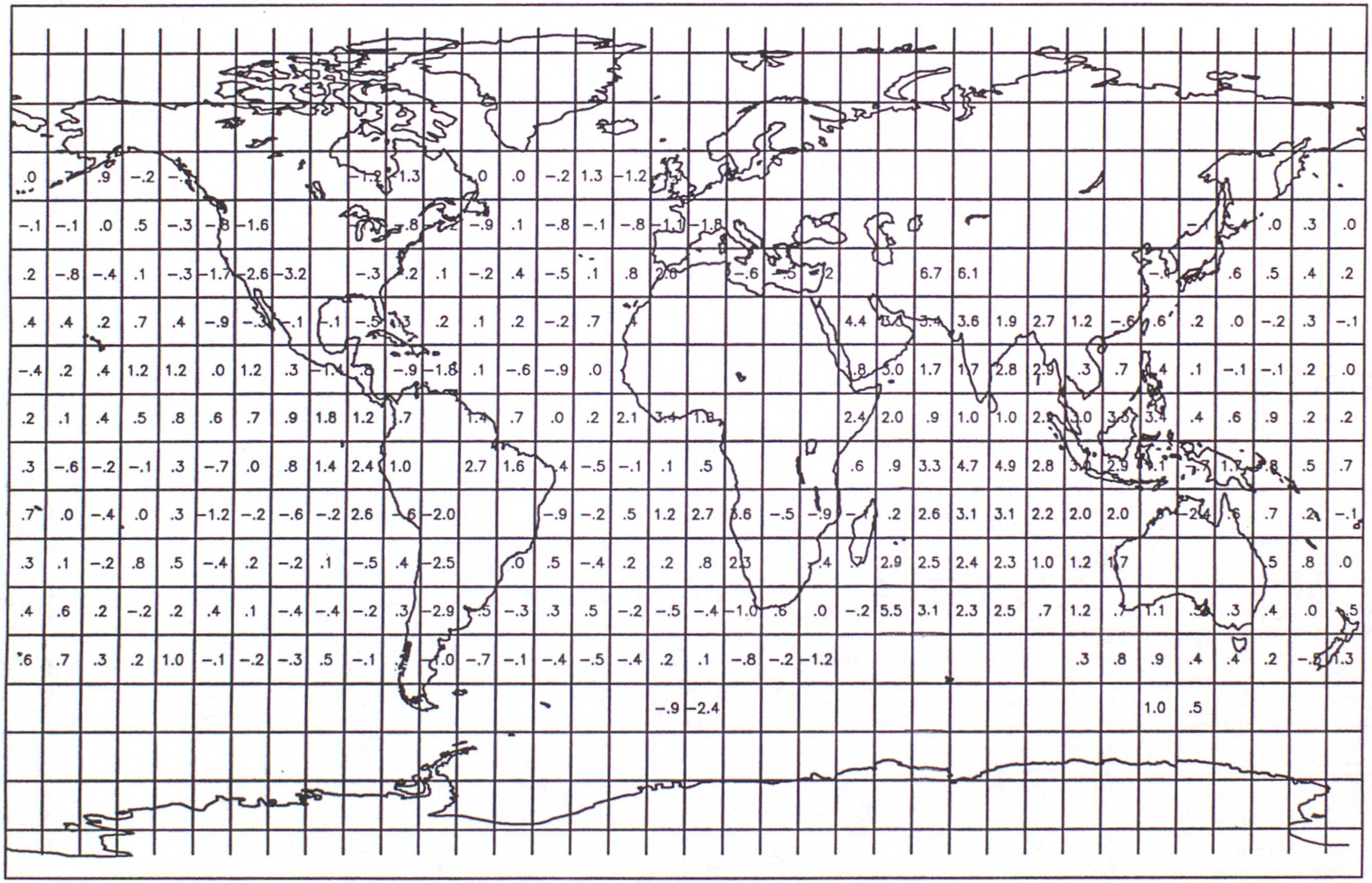
FIGURE 11


REPRESENTS 10 M/S

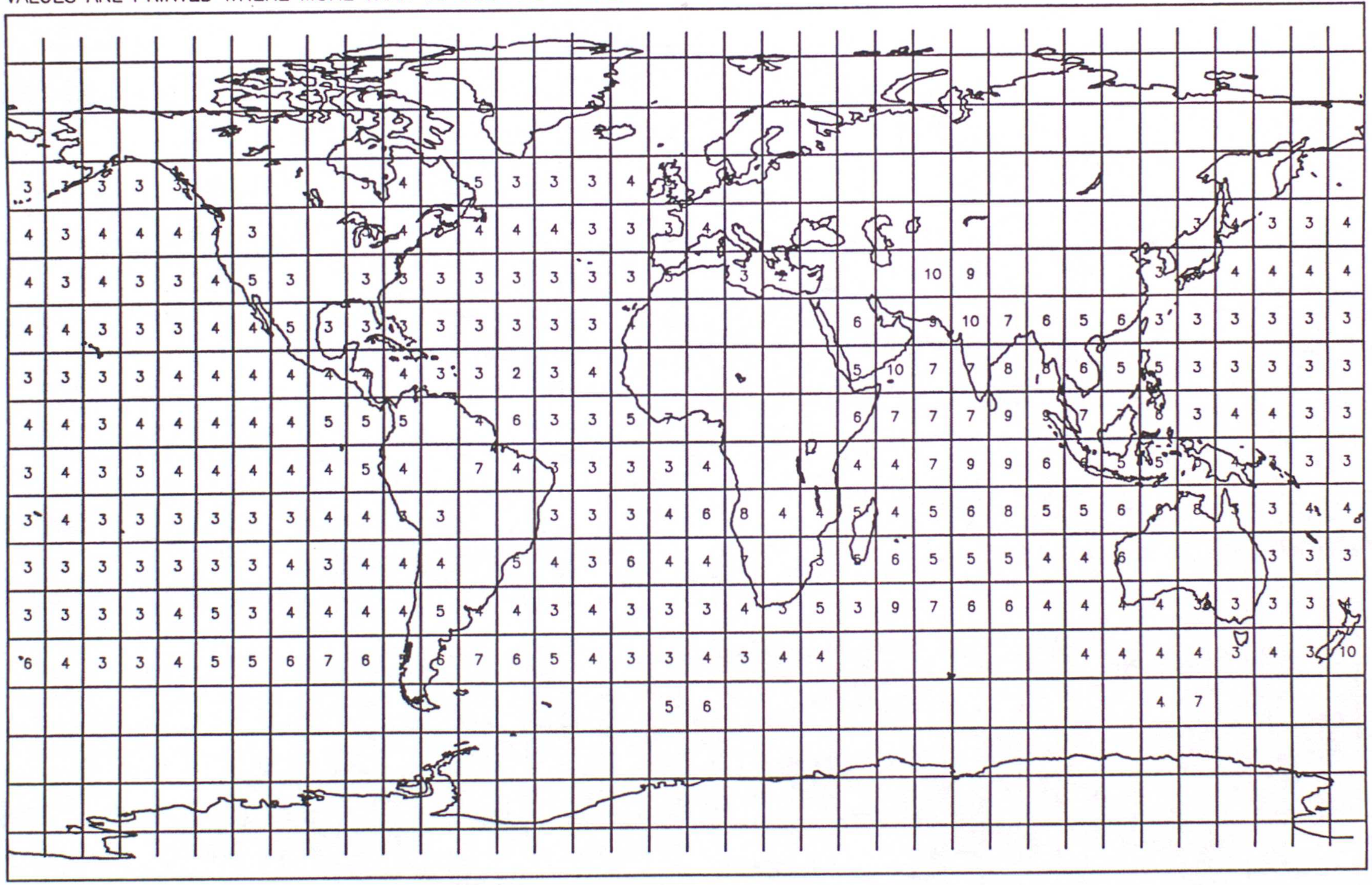
SATOB O−B VECTOR WIND DIFFERENCES BETWEEN 701−1000 HPA FIGURE 12
OCTOBER 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



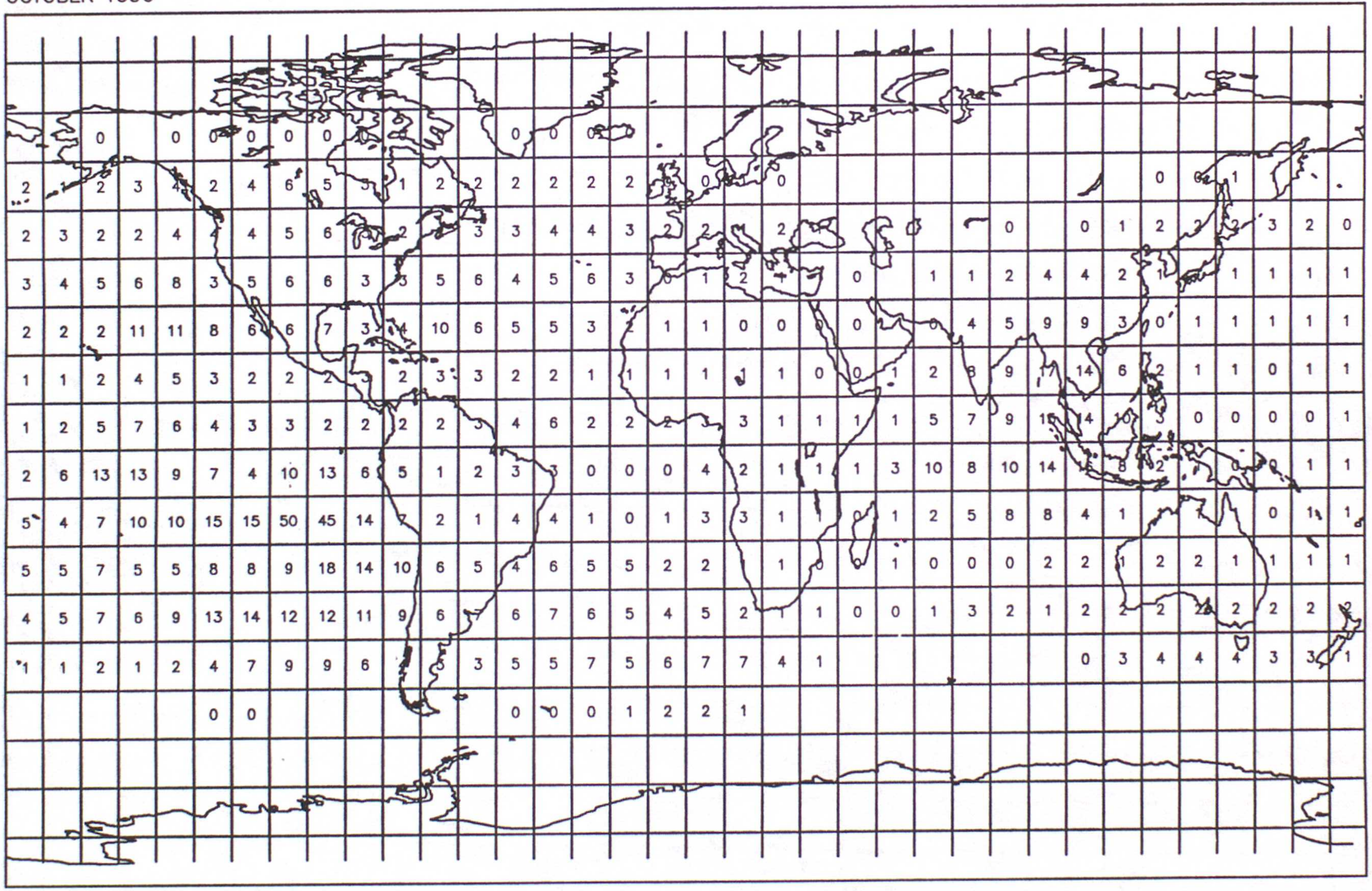
SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 13
OCTOBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


.0 .9 −.2 −1.2 1.3 .0 .0 −.2 1.3 −1.2
−.1 −.1 .0 .5 −.3 −.8 −1.6 .8 −.9 .1 −.8 −.1 −.8 −1.1 −1.8 .0 .3 .0
.2 −.8 −.4 .1 −.3 −1.7 −2.6 −3.2 −.3 .2 .1 −.2 .4 −.5 .1 .8 2.0 −.6 −.5 .2 6.7 6.1 .6 .5 .4 .2
.4 .4 .2 .7 .4 −.9 −.3 −.1 −.1 −.5 .3 .2 .1 .2 −.2 .7 .4 4.4 3.4 3.6 1.9 2.7 1.2 −.6 .6 .2 .0 −.2 .3 −.1
−.4 .2 .4 1.2 1.2 .0 1.2 .3 −.9 −1.8 .1 −.6 −.9 .0 .8 3.0 1.7 1.7 2.8 2.9 .3 .7 .4 .1 −.1 −.1 .2 .0
.2 .1 .4 .5 .8 .6 .7 .9 1.8 1.2 .7 1.4 .7 .0 .2 2.1 3.4 1.8 2.4 2.0 .9 1.0 1.0 3.0 3.4 .4 .6 .9 .2 .2
.3 −.6 −.2 −.1 .3 −.7 .0 .8 1.4 2.4 1.0 2.7 1.6 .4 −.5 −.1 .1 .5 .6 .9 3.3 4.7 4.9 2.8 2.9 1.7 .5 .7
.7 .0 −.4 .0 .3 −1.2 −.2 −.6 −.2 2.6 −2.0 −.9 −.2 .5 1.2 2.7 −.5 −.9 .2 2.6 3.1 3.1 2.2 2.0 2.0 −2.4 .7 −.1
.3 .1 −.2 .8 .5 −.4 .2 −.2 .1 −.5 .4 −2.5 .0 .5 −.4 .2 .2 .8 2.3 .4 2.9 2.5 2.4 2.3 1.0 1.2 1.7 .5 .8 .0
.4 .6 .2 −.2 .2 .4 .1 −.4 −.4 −.2 .3 −2.9 −.3 .3 .5 −.2 −.5 −.4 −1.0 .6 .0 −.2 5.5 3.1 2.3 2.5 .7 1.2 1.1 .3 .4 .0 .5
.6 .7 .3 .2 1.0 −.1 −.2 −.3 .5 −.1 1.0 −.7 −.1 −.4 −.5 −.4 .2 .1 −.8 −.2 −1.2 .3 .8 .9 .4 .4 .2 1.3
−.9 −2.4 1.0 .5

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 701 AND 1000 HPA FIGURE 14
OCTOBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


3 3 3 3 3 3 4 5 3 3 3 4 3
4 3 4 4 4 4 3 4 4 4 4 3 3 3 4 3 4 3 3 4
4 3 4 3 3 4 5 3 3 3 3 3 3 3 3 3 5 3 2 2 10 9 3 4 4 4 4
4 4 3 3 3 4 4 5 3 3 3 3 3 3 3 3 4 6 7 9 10 7 6 5 6 3 3 3 3 3 3
3 3 3 3 4 4 4 4 4 4 4 3 3 2 3 4 5 10 7 7 8 8 6 5 5 3 3 3 3 3
4 4 3 4 4 4 4 4 5 5 5 4 6 3 3 5 7 6 7 7 7 9 9 7 7 8 3 4 4 3 3
3 4 3 3 4 4 4 4 4 5 4 7 4 3 3 3 3 4 4 4 7 9 9 6 6 5 5 4 3 3 3
3 4 3 3 3 3 3 3 4 4 3 3 3 3 3 4 6 8 4 4 5 4 5 6 8 5 5 6 8 8 3 3 4 4
3 3 3 3 3 3 3 4 3 4 4 4 5 4 3 6 4 4 7 3 5 6 5 5 5 4 4 6 3 3 3
3 3 3 3 4 5 3 4 4 4 4 5 4 4 3 4 3 3 3 4 3 5 3 9 7 6 6 4 4 4 4 3 3 3 3 4
6 4 3 3 4 5 5 6 7 6 5 6 7 6 5 4 3 3 4 3 4 4 4 4 4 4 3 4 3 10
5 6 4 7

AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 401 AND 700 HPA FIGURE 15
OCTOBER 1996



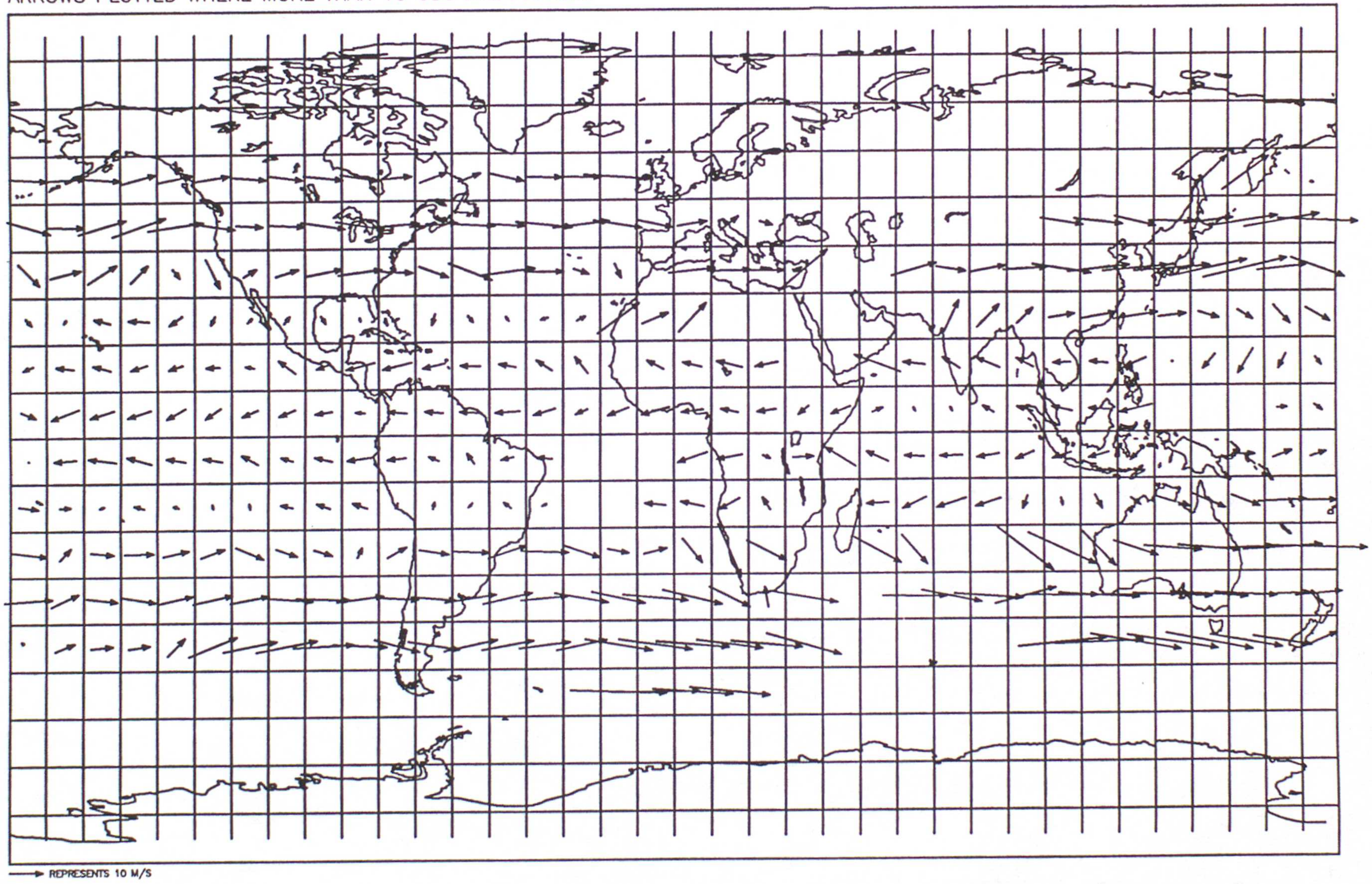
SATOB VECTOR MEAN WINDS BETWEEN 401–700 HPA

FIGURE 16

OCTOBER 1996

ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT


REPRESENTS 10 M/S

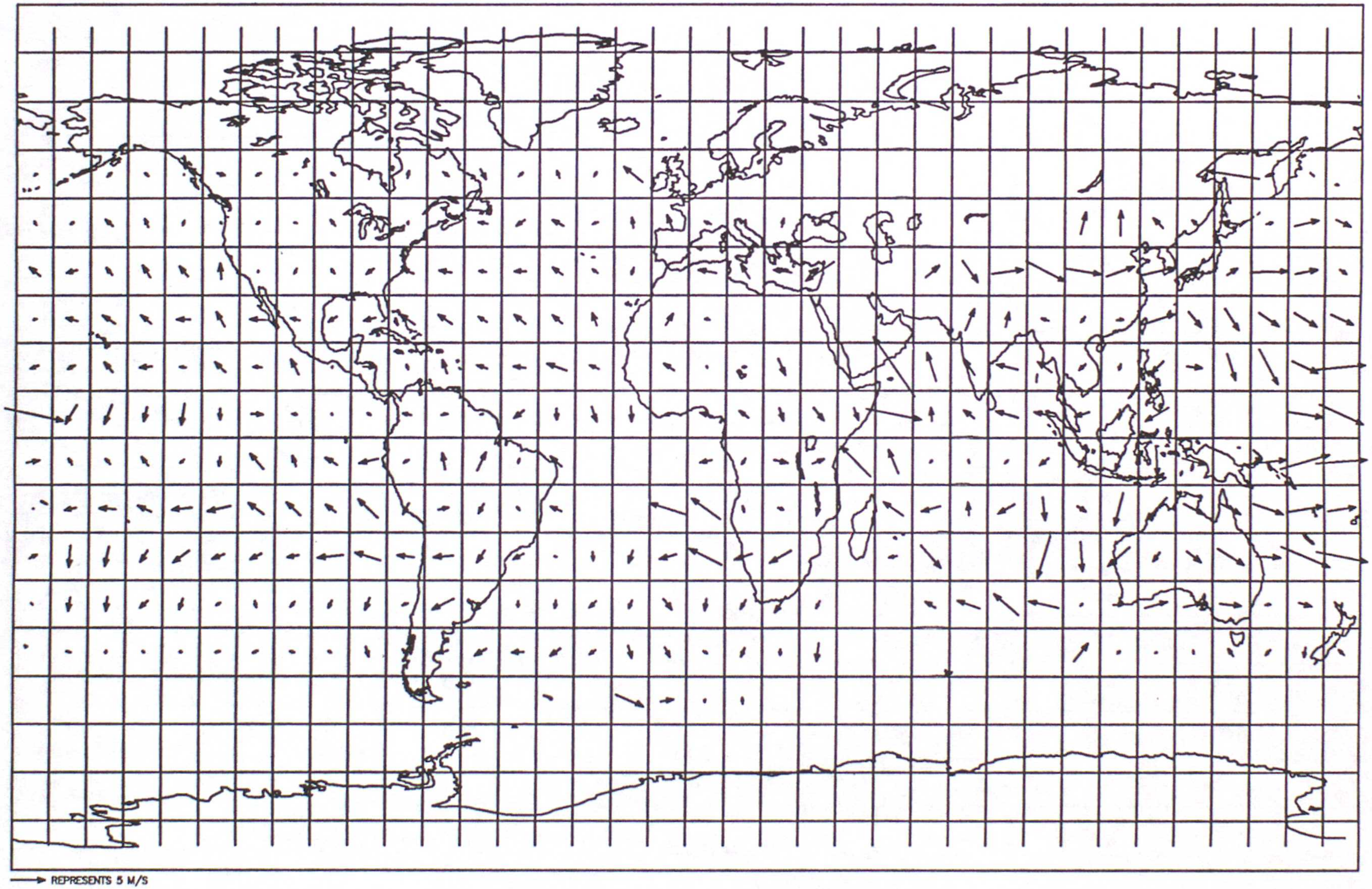
SATOB O–B VECTOR WIND DIFFERENCES BETWEEN 401–700 HPA

OCTOBER 1996

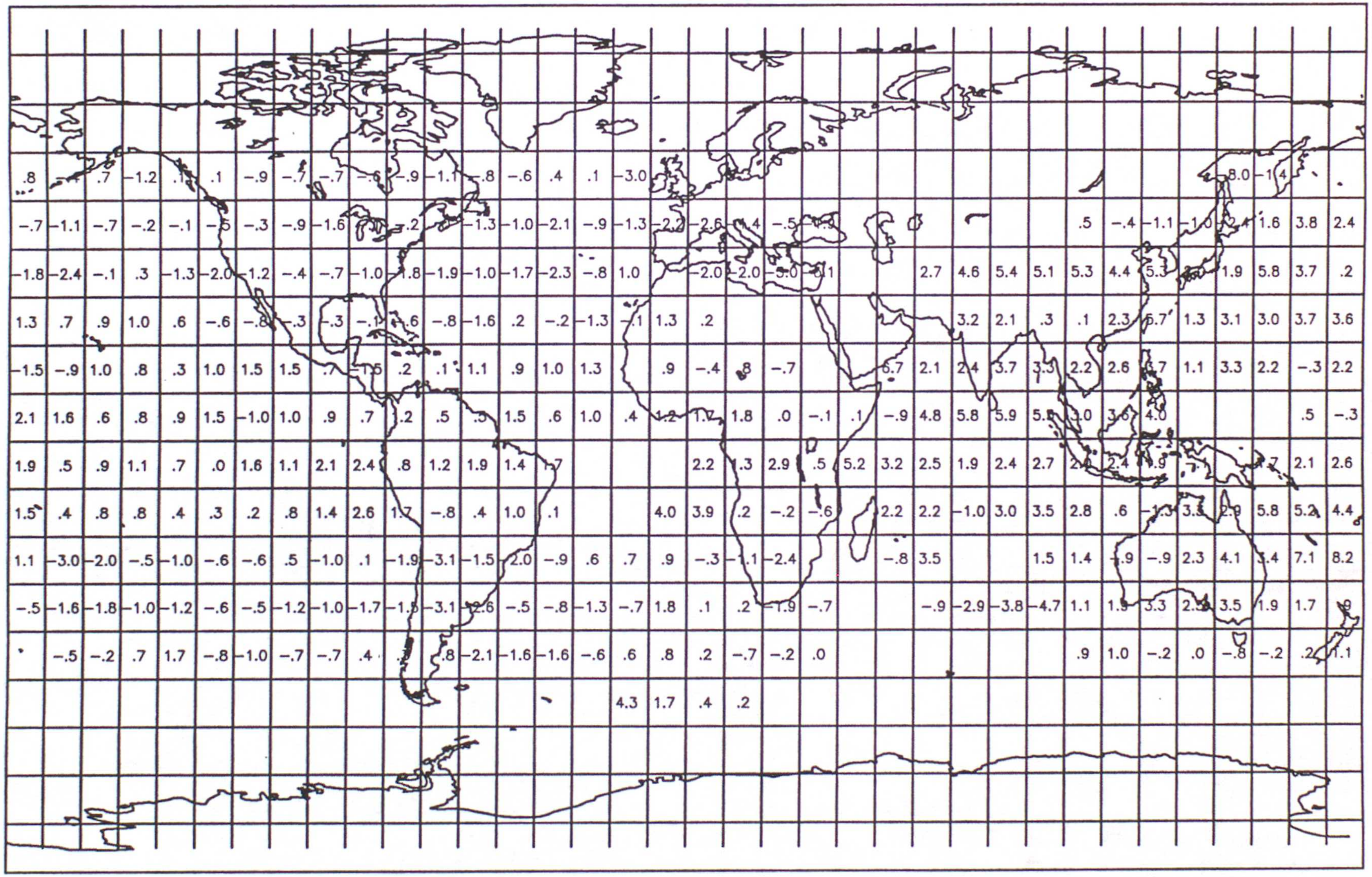
ALL OBSERVATIONS

ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

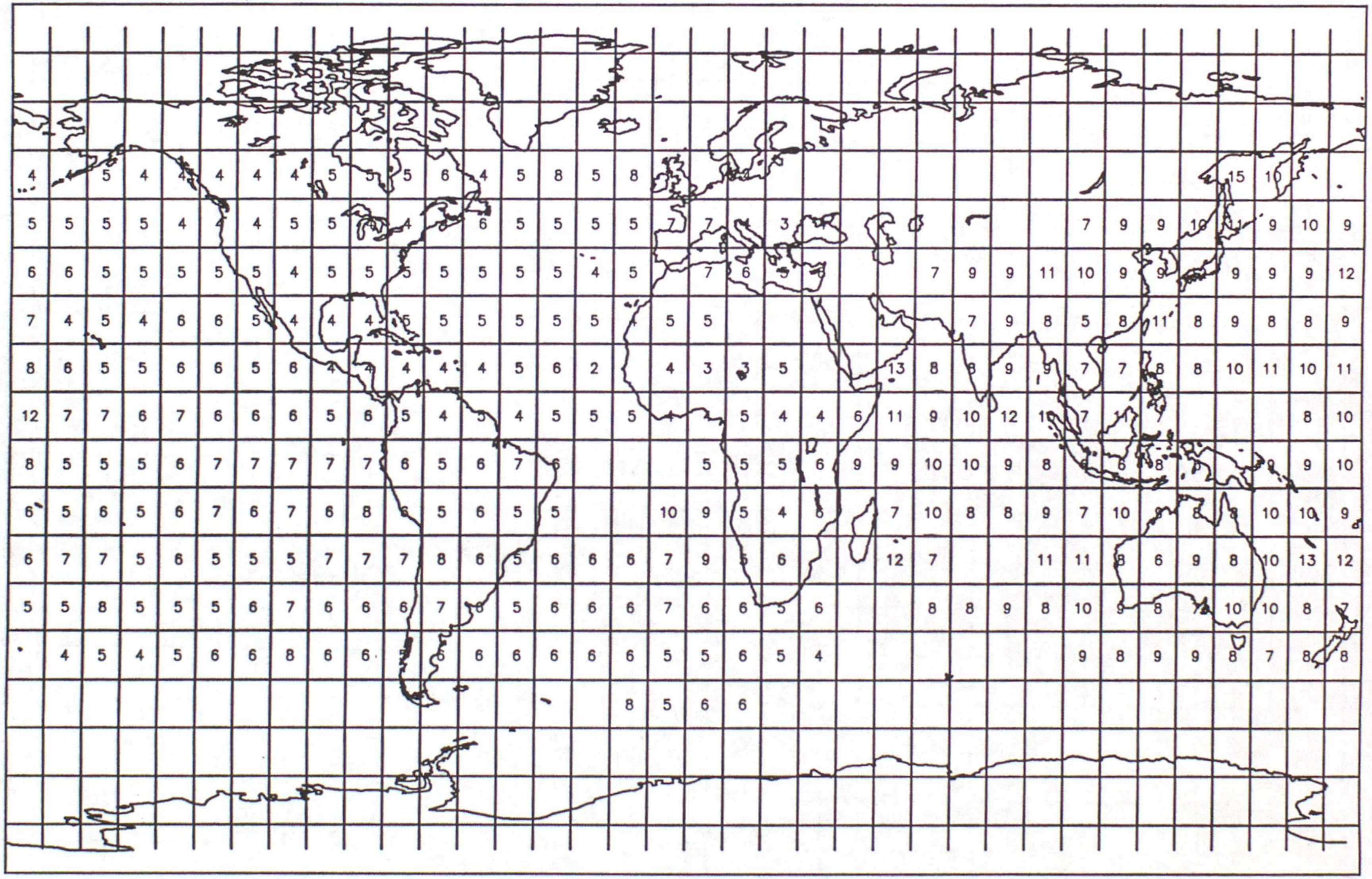
FIGURE 17



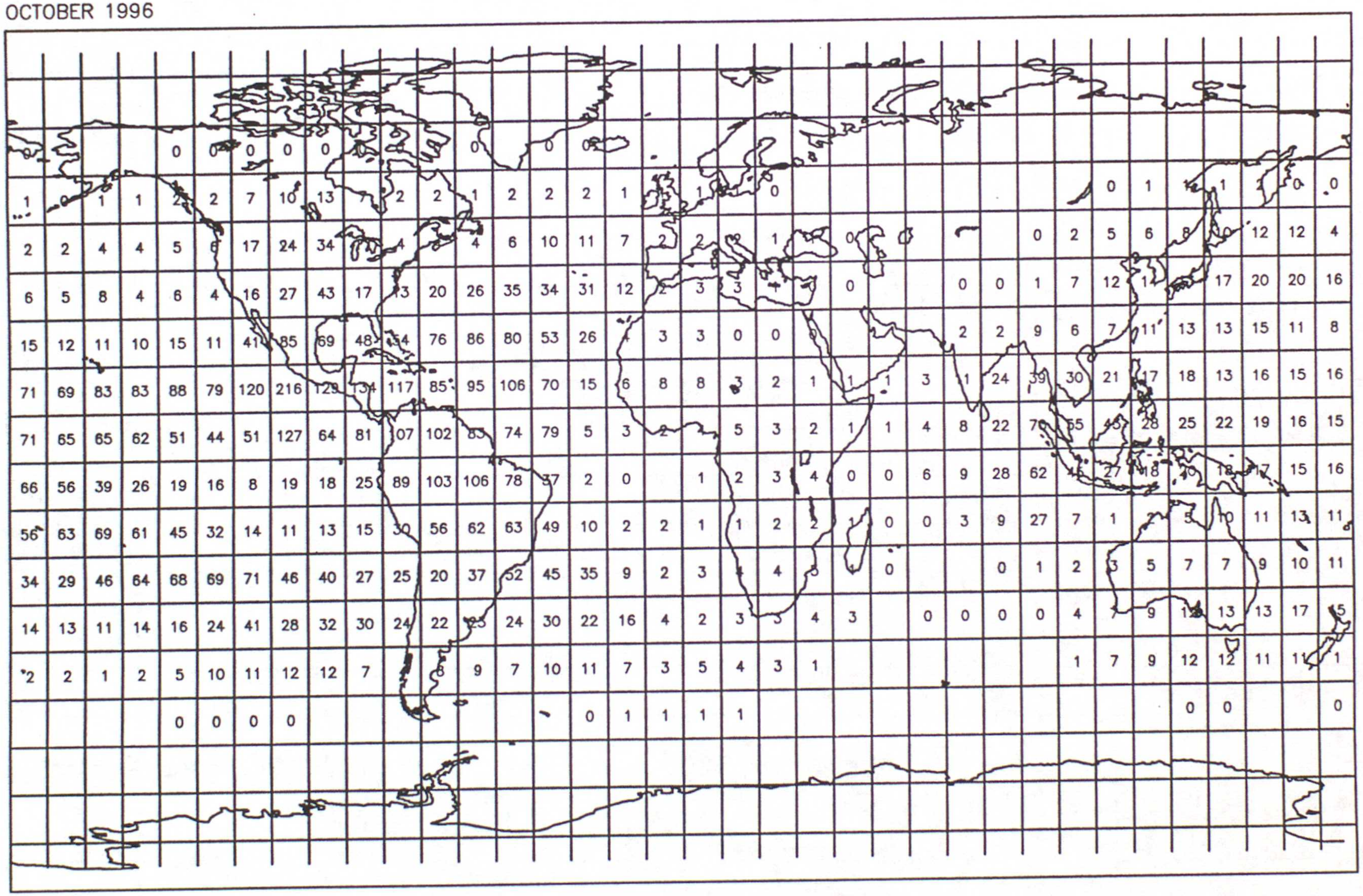
SATOBS : MEAN O-B SPEED DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 18
OCTOBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


.8 .7 -1.2 .1 .1 -.9 -.7 -.7 -.6 -.9 -1.1 -.8 -.6 .4 .1 -3.0 -8.0 -1.4
-.7 -1.1 -.7 -.2 -.1 -.5 -.3 -.9 -1.6 .2 -1.3 -1.0 -2.1 -.9 -1.3 -2.2 -2.6 -1.4 -.5 .5 -.4 -1.1 -1.0 2.4 1.6 3.8 2.4
-1.8 -2.4 -.1 .3 -1.3 -2.0 -1.2 -.4 -.7 -1.0 -1.8 -1.9 -1.0 -1.7 -2.3 -.8 1.0 -2.0 -2.0 -5.0 -1.1 2.7 4.6 5.4 5.1 5.3 4.4 5.3 1.9 5.8 3.7 .2
1.3 .7 .9 1.0 .6 -.6 -.8 -.3 -.3 -.1 .6 -.8 -1.6 .2 -.2 -1.3 -.1 1.3 .2 3.2 2.1 .3 .1 2.3 5.7 1.3 3.1 3.0 3.7 3.6
-1.5 -.9 1.0 .8 .3 1.0 1.5 1.5 .7 -1.5 .2 .1 1.1 .9 1.0 1.3 .9 -.4 .8 -.7 6.7 2.1 2.4 3.7 3.3 2.2 2.6 3.7 1.1 3.3 2.2 -.3 2.2
2.1 1.6 .6 .8 .9 1.5 -1.0 1.0 .9 .7 .2 .5 .5 1.5 .6 1.0 .4 1.2 1.7 1.8 .0 -.1 .1 -.9 4.8 5.8 5.9 5.8 3.0 3.6 4.0 .5 -.3
1.9 .5 .9 1.1 .7 .0 1.6 1.1 2.1 2.4 .8 1.2 1.9 1.4 1.7 2.2 1.3 2.9 .5 5.2 3.2 2.5 1.9 2.4 2.7 2.4 2.4 1.9 .7 1.7 2.1 2.6
1.5 .4 .8 .8 .4 .3 .2 .8 1.4 2.6 1.7 -.8 .4 1.0 .1 4.0 3.9 .2 -.2 -.6 2.2 2.2 -1.0 3.0 3.5 2.8 .6 -1.3 3.3 2.9 5.8 5.2 4.4
1.1 -3.0 -2.0 -.5 -1.0 -.6 -.6 .5 -1.0 .1 -1.9 -3.1 -1.5 2.0 -.9 .6 .7 .9 -.3 -1.1 -2.4 -.8 3.5 1.5 1.4 -.9 -.9 2.3 4.1 3.4 7.1 8.2
-.5 -1.6 -1.8 -1.0 -1.2 -.6 -.5 -1.2 -1.0 -1.7 -1.5 -3.1 -2.6 -.5 -.8 -1.3 -.7 1.8 .1 .2 -1.9 -.7 -.9 -2.9 -3.8 -4.7 1.1 1.5 3.3 2.5 3.5 1.9 1.7 .9
-.5 -.2 .7 1.7 -.8 -1.0 -.7 -.7 .4 .3 .8 -2.1 -1.6 -1.6 -.6 .6 .8 .2 -.7 -.2 .0 .9 1.0 -.2 .0 -.8 -.2 .2 1.1
4.3 1.7 .4 .2

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 401 AND 700 HPA FIGURE 19
OCTOBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


4 5 4 4 4 4 4 5 5 5 6 4 5 8 5 8 15 10
5 5 5 5 4 4 4 5 5 4 4 6 5 5 5 5 7 7 4 3 7 9 9 10 11 9 10 9
6 6 5 5 5 5 5 4 5 5 5 5 5 5 5 4 5 7 6 5 6 7 9 9 11 10 9 9 9 9 9 12
7 4 5 4 6 6 5 4 4 4 5 5 5 5 5 5 4 5 5 7 9 8 5 8 11 8 9 8 8 9
8 6 5 5 6 6 5 6 4 4 4 4 4 5 6 2 4 3 3 5 13 8 8 9 9 7 7 8 8 10 11 10 11
12 7 7 6 7 6 6 6 5 6 5 4 5 4 5 5 5 4 4 5 4 4 6 11 9 10 12 10 7 11 8 10
8 5 5 5 6 7 7 7 7 7 6 5 6 7 6 5 5 5 6 9 9 10 10 9 8 6 6 8 9 9 10
6 5 6 5 6 7 6 7 6 8 6 5 6 5 5 10 9 5 4 6 7 10 8 8 9 7 10 8 8 8 10 10 9
6 7 7 5 6 5 5 5 7 7 7 8 6 5 6 6 6 7 9 5 6 12 7 11 11 8 6 9 8 10 13 12
5 5 8 5 5 5 6 7 6 6 6 7 6 5 6 6 6 7 6 6 5 6 8 8 9 8 10 9 8 7 10 10 8 7
4 5 4 5 6 6 8 6 6 5 6 6 6 6 6 6 5 5 6 5 4 9 8 9 9 8 7 8 8
8 5 6 6

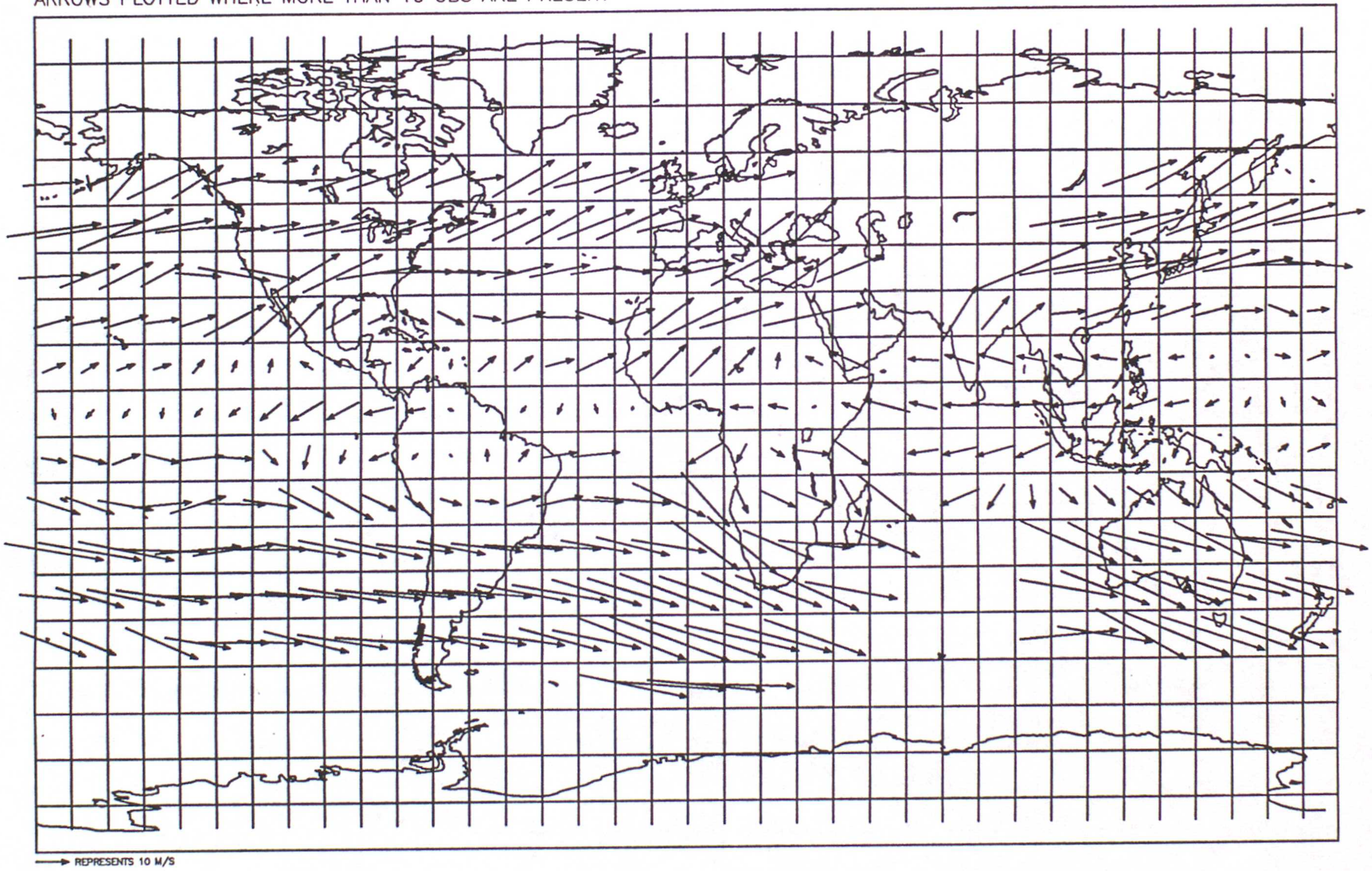
AVERAGE DAILY NUMBER OF SATOB OBSERVATIONS BETWEEN 101 AND 400 HPA FIGURE 20
OCTOBER 1996



0				0	0	0	0	0	0			0		0	0																				
1	0	1	1	2	2	7	10	13	7	2	2	1	2	2	2	1		1		0									0	1	1	1	2	0	0
2	2	4	4	5	6	17	24	34		4		4	6	10	11	7	2	2	2	1	1	0					0	2	5	6	8	10	12	12	4
6	5	8	4	6	4	16	27	43	17	13	20	26	35	34	31	12	2	3	3	1		0			0	0	1	7	12	14		17	20	20	16
15	12	11	10	15	11	41	85	69	48	54	76	86	80	53	26	4	3	3	0	0	0				2	2	9	6	7	11	13	13	15	11	8
71	69	83	83	88	79	120	216	129	134	117	85	95	106	70	15	6	8	8	3	2	1	1	1	3	1	24	39	30	21	17	18	13	16	15	16
71	65	65	62	51	44	51	127	64	81	107	102	83	74	79	5	3	2		5	3	2	1	1	4	8	22	70	55	45	28	25	22	19	16	15
66	56	39	26	19	16	8	19	18	25	89	103	106	78	37	2	0		1	2	3	4	0	0	6	9	28	62	45	27	18	10	18	17	15	16
56	63	69	61	45	32	14	11	13	15	30	56	62	63	49	10	2	2	1	1	2	2	1	0	0	3	9	27	7	1	2	5	10	11	13	11
34	29	46	64	68	69	71	46	40	27	25	20	37	52	45	35	9	2	3	4	4	3	1	0			0	1	2	3	5	7	7	9	10	11
14	13	11	14	16	24	41	28	32	30	24	22	23	24	30	22	16	4	2	3	3	4	3		0	0	0	0	4	7	9	12	13	13	17	15
2	2	1	2	5	10	11	12	12	7		8	9	7	10	11	7	3	5	4	3	1							1	7	9	12	12	11	11	1
				0	0	0	0								0	1	1	1	1												0	0			0

SATOB VECTOR MEAN WINDS BETWEEN 101–400 HPA
OCTOBER 1996
ALL OBSERVATIONS
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT

FIGURE 21


REPRESENTS 10 M/S

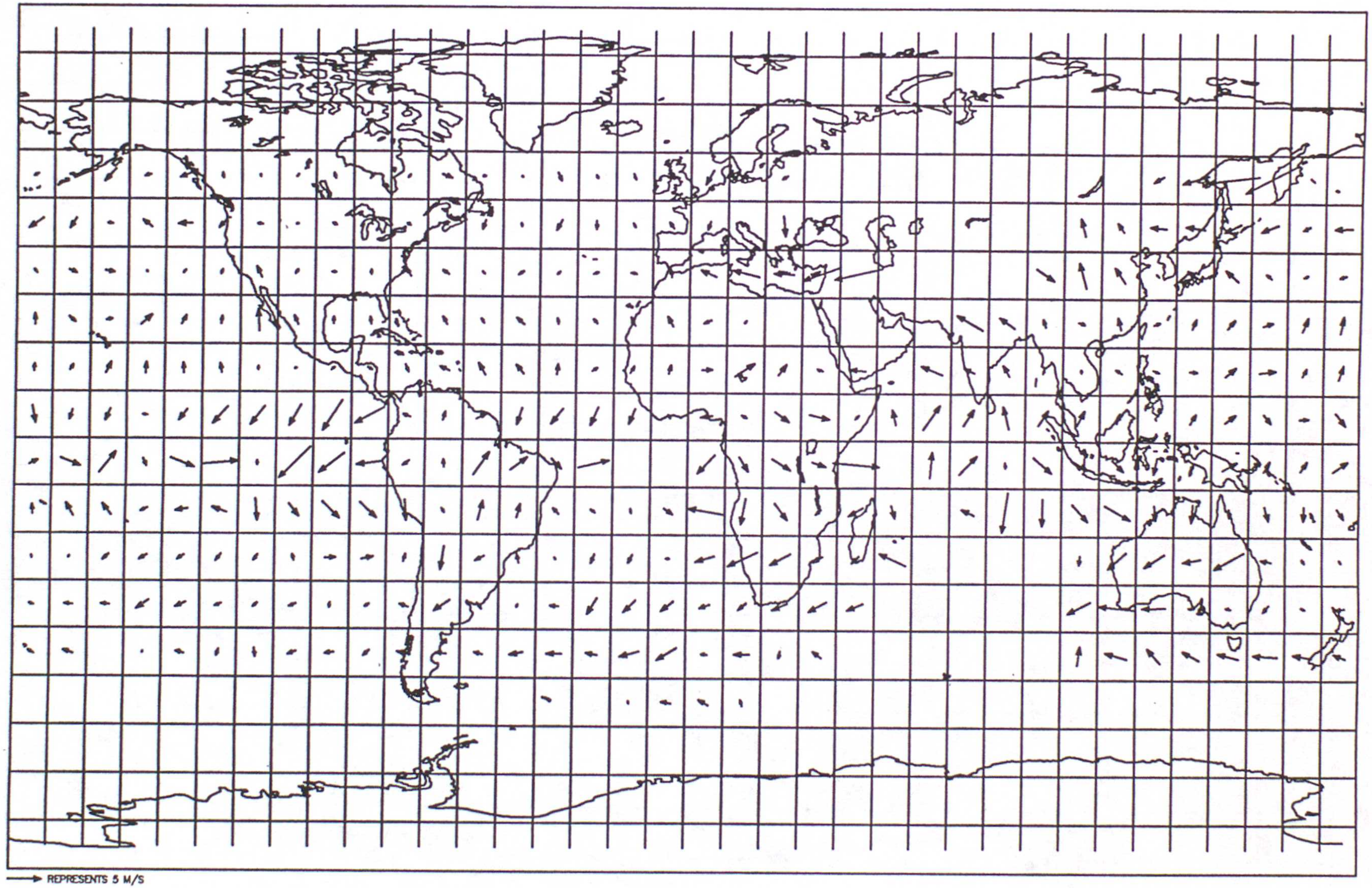
SATOB O-B VECTOR WIND DIFFERENCES BETWEEN 101-400 HPA

FIGURE 22

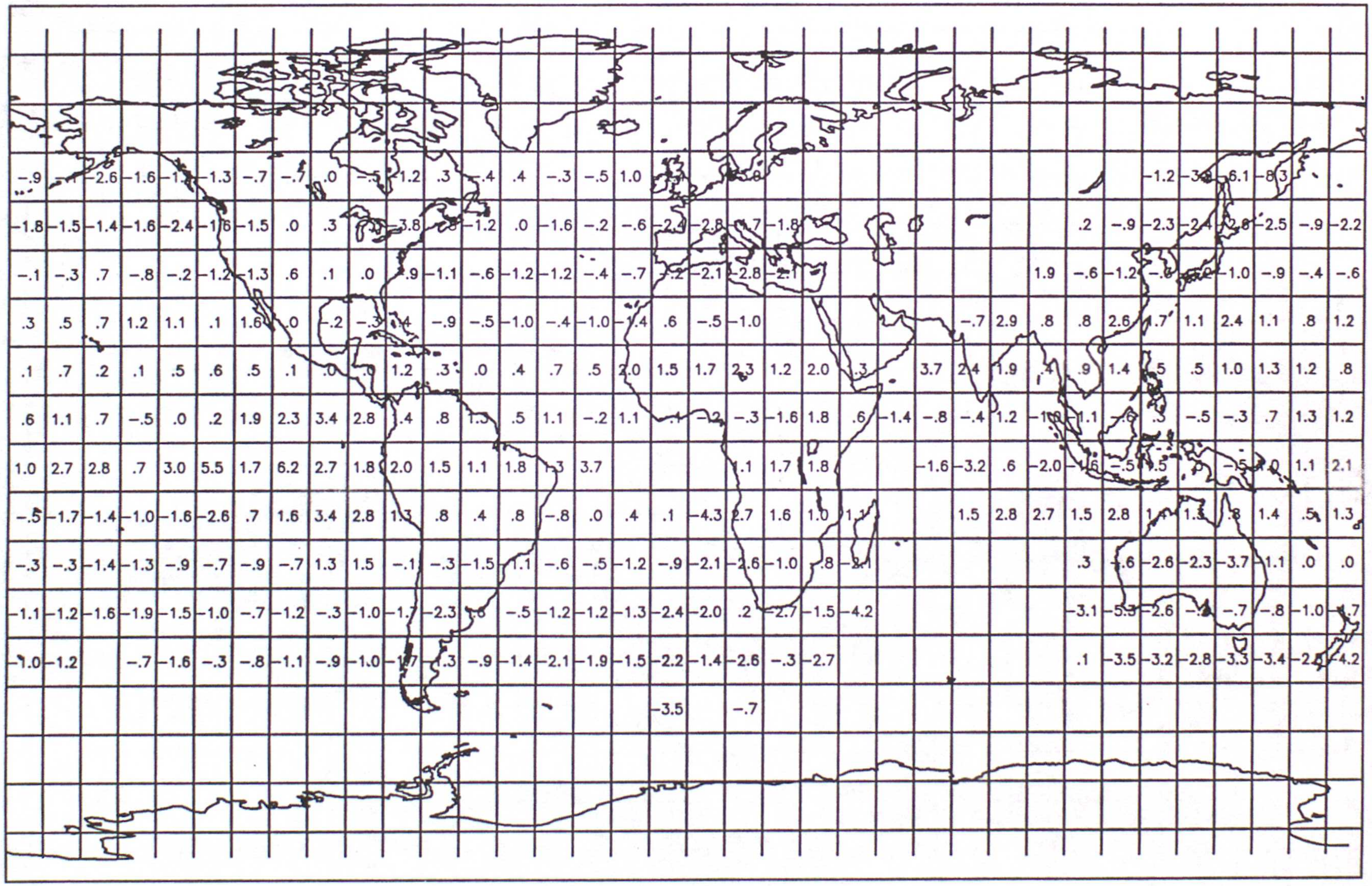
OCTOBER 1996

ALL OBSERVATIONS

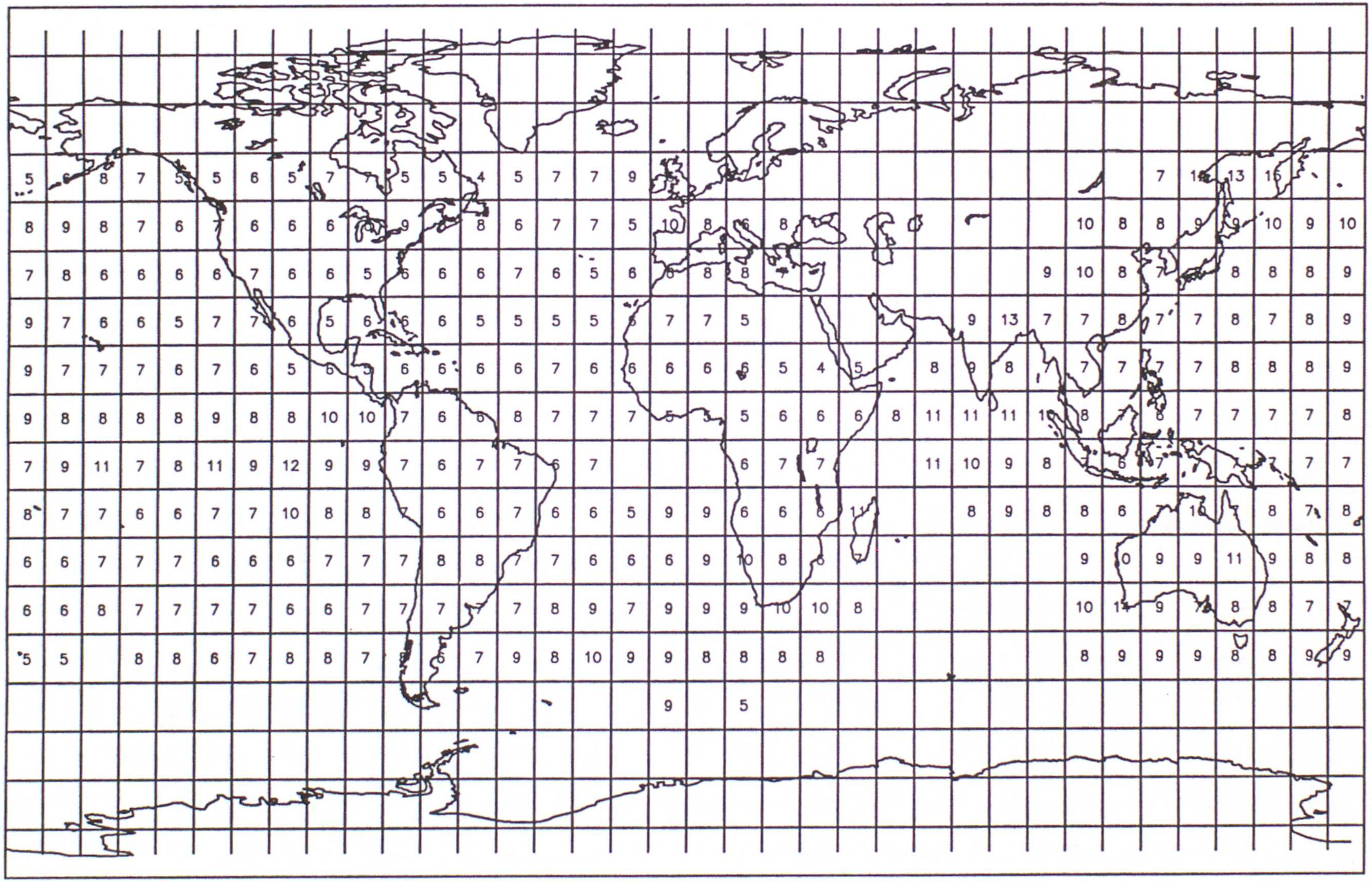
ARROWS PLOTTED WHERE MORE THAN 10 OBS ARE PRESENT



SATOBS : MEAN O–B SPEED DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 23
OCTOBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


-.9 -2.6 -1.6 -1.3 -.7 -.7 .0 -.5 1.2 .3 -.4 .4 -.3 -.5 1.0 -1.2 -6.1 -8.3
-1.8 -1.5 -1.4 -1.6 -2.4 -1.6 -1.5 .0 .3 -3.8 -1.2 .0 -1.6 -.2 -.6 -2.4 -2.8 -.7 -1.8 .2 -.9 -2.3 -2.4 -2.8 -2.5 -.9 -2.2
-.1 -.3 .7 -.8 -.2 -1.2 -1.3 .6 .1 .0 .9 -1.1 -.6 -1.2 -1.2 -.4 -.7 -.2 -2.1 -2.8 -2.1 1.9 -.6 -1.2 -1.0 -.9 -.4 -.6
.3 .5 .7 1.2 1.1 .1 1.6 .0 -.2 -.3 .4 -.9 -.5 -1.0 -.4 -1.0 -1.4 .6 -.5 -1.0 -.7 2.9 .8 .8 2.6 1.7 1.1 2.4 1.1 .8 1.2
.1 .7 .2 .1 .5 .6 .5 .1 .0 1.2 .3 .0 .4 .7 .5 2.0 1.5 1.7 2.3 1.2 2.0 .3 3.7 2.4 1.9 .4 .9 1.4 .5 .5 1.0 1.3 1.2 .8
.6 1.1 .7 -.5 .0 .2 1.9 2.3 3.4 2.8 1.4 .8 1.3 .5 1.1 -.2 1.1 -.3 -1.6 1.8 .6 -1.4 -.8 -.4 1.2 -1.1 .3 -.5 -.3 .7 1.3 1.2
1.0 2.7 2.8 .7 3.0 5.5 1.7 6.2 2.7 1.8 2.0 1.5 1.1 1.8 1.3 3.7 1.1 1.7 1.8 -1.6 -3.2 .6 -2.0 -1.6 -.5 1.5 -.5 1.0 1.1 2.1
-.5 -1.7 -1.4 -1.0 -1.6 -2.6 .7 1.6 3.4 2.8 1.3 .8 .4 .8 -.8 .0 .4 .1 -4.3 2.7 1.6 1.0 1.1 1.5 2.8 2.7 1.5 2.8 1.4 1.3 .8 1.4 .5 1.3
-.3 -.3 -1.4 -1.3 -.9 -.7 -.9 -.7 1.3 1.5 -.1 -.3 -1.5 1.1 -.6 -.5 -1.2 -.9 -2.1 -2.6 -1.0 .8 -2.1 .3 -.6 -2.6 -2.3 -3.7 1.1 .0 .0
-1.1 -1.2 -1.6 -1.9 -1.5 -1.0 -.7 -1.2 -.3 -1.0 -1.7 -2.3 -.5 -1.2 -1.2 -1.3 -2.4 -2.0 .2 -2.7 -1.5 -4.2 -3.1 -5.3 -2.6 -.7 -.8 -1.0 -1.7
-1.0 -1.2 -.7 -1.6 -.3 -.8 -1.1 -.9 -1.0 -1.7 -1.3 -.9 -1.4 -2.1 -1.9 -1.5 -2.2 -1.4 -2.6 -.3 -2.7 .1 -3.5 -3.2 -2.8 -3.3 -3.4 -2.5 -4.2
-3.5 -.7

SATOBS : RMS O–B VECTOR DIFFERENCES (M/S) BETWEEN 101 AND 400 HPA FIGURE 24
OCTOBER 1996
USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 10 OBS ARE PRESENT


5 6 8 7 5 5 6 5 7 7 5 5 4 5 7 7 9 7 14 13 15
8 9 8 7 6 7 6 6 6 10 9 8 6 7 7 5 10 8 6 8 10 8 8 9 9 10 9 10
7 8 6 6 6 6 7 6 6 5 6 6 6 7 6 5 6 6 8 8 7 9 10 8 7 8 8 8 9
9 7 6 6 5 7 7 6 5 6 6 6 5 5 5 5 6 7 7 5 9 13 7 7 8 7 7 8 7 8 9
9 7 7 7 6 7 6 5 6 5 6 6 6 6 7 6 6 6 6 6 5 4 5 8 9 8 7 7 7 7 7 8 8 8 9
9 8 8 8 8 9 8 8 10 10 7 6 6 8 7 7 7 5 3 5 6 6 6 8 11 11 11 10 8 7 6 7 7 7 7 8
7 9 11 7 8 11 9 12 9 9 7 6 7 7 6 7 6 7 7 11 10 9 8 7 6 7 7 7 7 7
8 7 7 6 6 7 7 10 8 8 7 6 6 7 6 6 5 9 9 6 6 6 11 8 9 8 8 6 7 10 7 8 7 8
6 6 7 7 7 6 6 6 7 7 7 8 8 7 7 6 6 6 9 10 8 6 7 9 10 9 9 11 9 8 8
6 6 8 7 7 7 7 6 6 7 7 7 7 7 8 9 7 9 9 9 10 10 8 10 14 9 7 8 8 7 7
5 5 8 8 6 7 8 8 7 8 6 7 9 8 10 9 9 8 8 8 8 8 9 9 9 8 8 9 9
9 5

MONITORING OF SATELLITE TEMPERATURES

MONITORING CENTRE: BRACKNELL

MONTH: October, 1996

Monitoring procedures

Period :One calendar month.

Data monitored :Reports from NOAA-12, NOAA-14 500 km.

Standard of comparison :Background field from Bracknell global model.

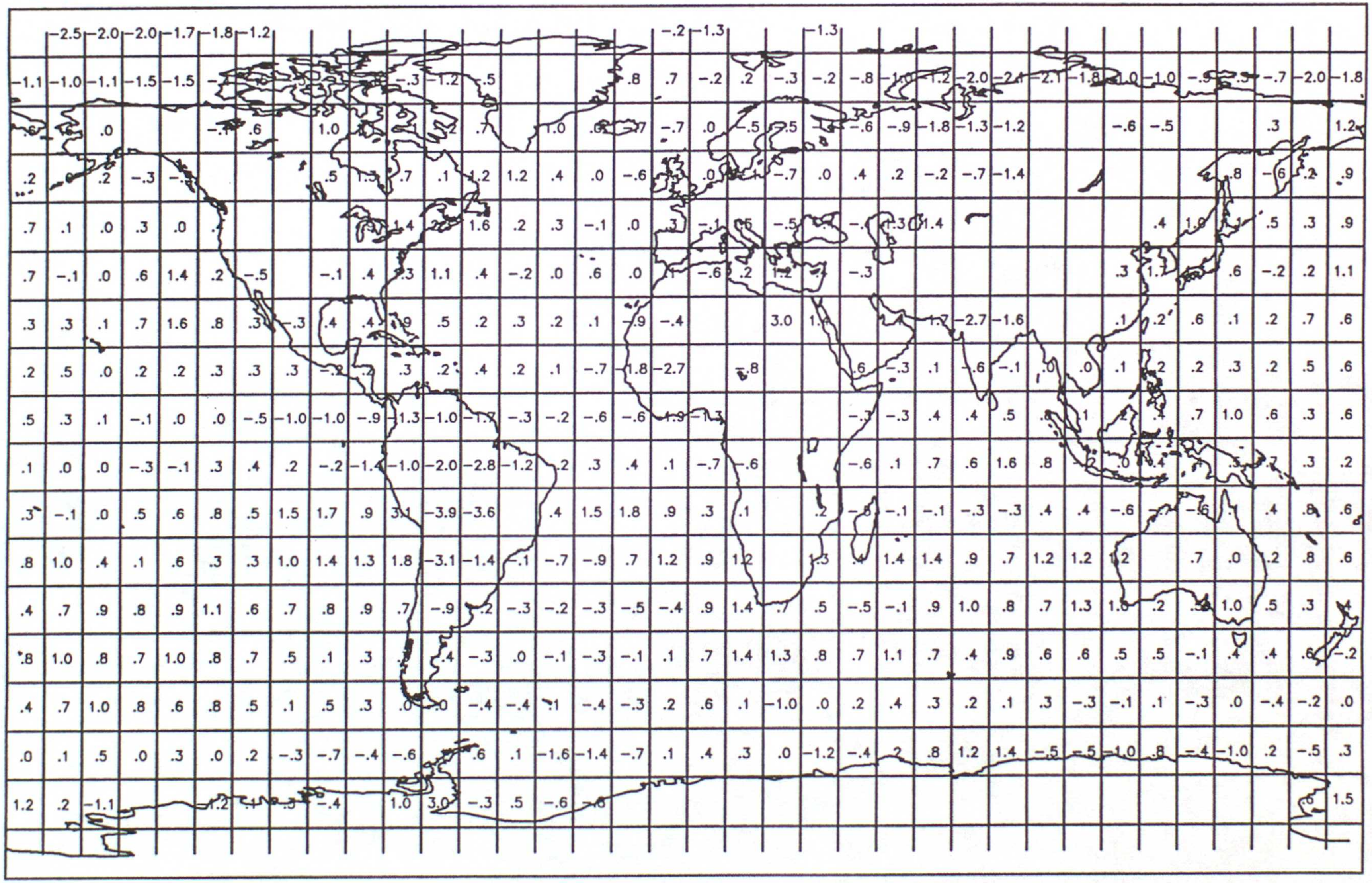
Selection Criteria :All SATEM soundings where number of observations > 30.

Data Extracted :Layer: 850 - 1000 hPa
100 - 300 hPa
30 - 50 hPa

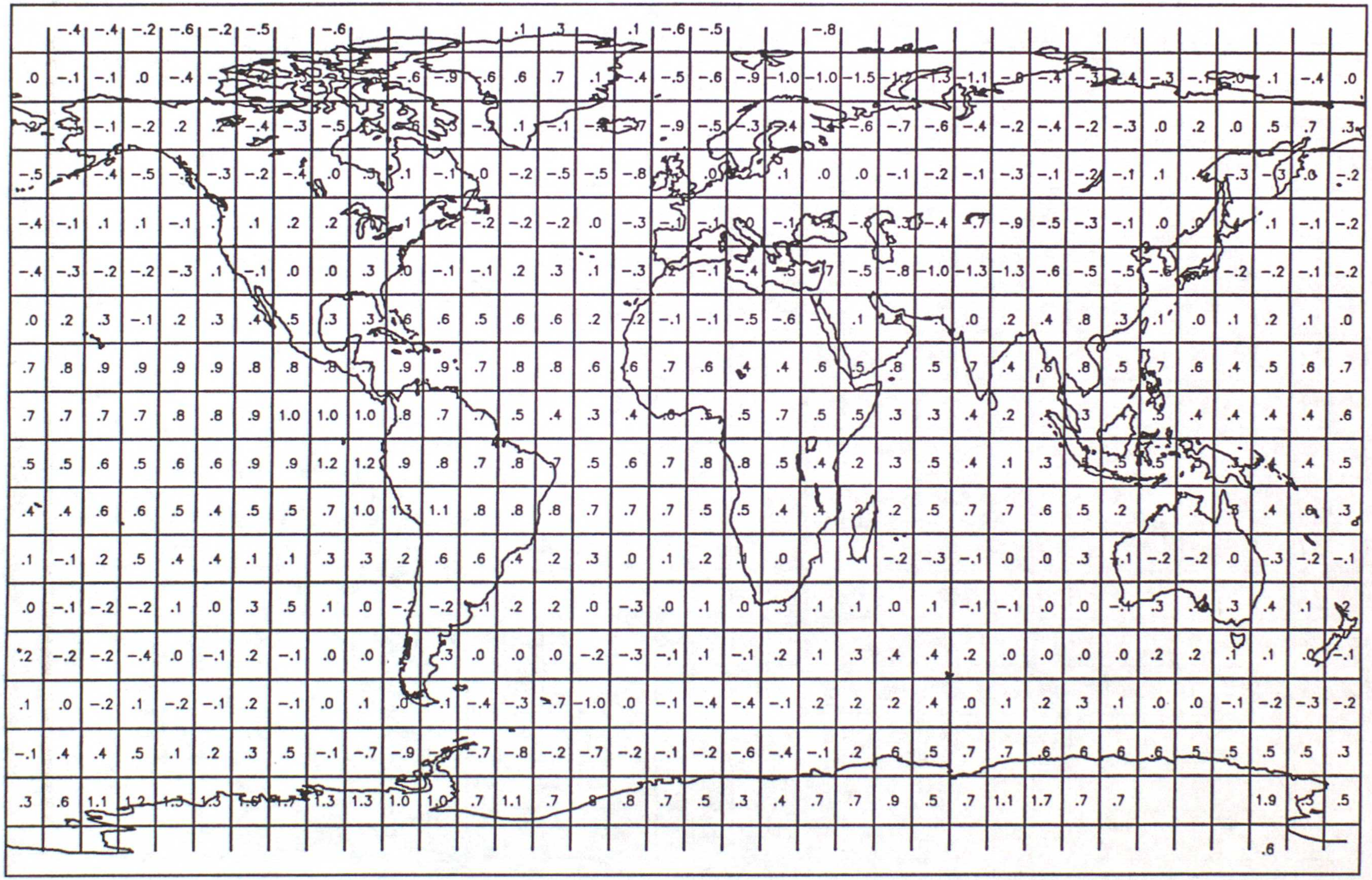
:Mean observation minus background temperature differences

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
OCTOBER 1996
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 25


-2.5 -2.0 -2.0 -1.7 -1.8 -1.2 -.2 -1.3 -1.3
-1.1 -1.0 -1.1 -1.5 -1.5 -.3 -1.2 .5 .8 .7 -.2 .2 -.3 -.2 -.8 -1.0 -1.2 -2.0 -2.4 -2.1 -1.8 -1.0 -1.0 -.9 -.3 -.7 -2.0 -1.8
.0 .6 1.0 .2 .7 1.0 .6 -.7 -.7 .0 -.5 .5 -.6 -.9 -1.8 -1.3 -1.2 -.6 -.5 .3 1.2
.2 .2 -.3 .5 1.3 .7 .1 1.2 1.2 .4 .0 -.6 .0 -.7 .0 .4 .2 -.2 -.7 -1.4 .8 -.6 .2 .9
.7 .1 .0 .3 .0 1.4 1.6 .2 .3 -.1 .0 .3 -.1 .5 -.5 -.3 1.4 .4 1.0 .5 .3 .9
.7 -.1 .0 .6 1.4 .2 -.5 -.1 .4 .3 1.1 .4 -.2 .0 .6 .0 -.6 .2 1.2 -.3 .3 1.7 .6 -.2 .2 1.1
.3 .3 .1 .7 1.6 .8 .3 -.3 .4 .4 .9 .5 .2 .3 .2 .1 -.9 -.4 3.0 1.4 -1.7 -2.7 -1.6 .1 .2 .6 .1 .2 .7 .6
.2 .5 .0 .2 .2 .3 .3 .3 -.2 .2 .3 .2 .4 .2 .1 -.7 -1.8 -2.7 -.8 .6 -.3 .1 -.6 -.1 .0 .0 .1 .2 .2 .3 .2 .5 .6
.5 .3 .1 -.1 .0 .0 -.5 -1.0 -1.0 -.9 -1.3 -1.0 -1.7 -.3 -.2 -.6 -.6 -1.9 -1.3 -.3 -.3 .4 .4 .5 .1 .4 .7 1.0 .6 .3 .6
.1 .0 .0 -.3 -.1 .3 .4 .2 -.2 -1.4 -1.0 -2.0 -2.8 -1.2 .2 .3 .4 .1 -.7 -.6 -.6 .1 .7 .6 1.6 .8 .0 .4 .7 .3 .2
.3 -.1 .0 .5 .6 .8 .5 1.5 1.7 .9 3.1 -3.9 -3.6 .4 1.5 1.8 .9 .3 .1 .2 -.8 -.1 -.1 -.3 -.3 .4 .4 -.6 -.6 .4 .8 .6
.8 1.0 .4 .1 .6 .3 .3 1.0 1.4 1.3 1.8 -3.1 -1.4 .1 -.7 -.9 .7 1.2 .9 1.2 1.3 .4 1.4 1.4 .9 .7 1.2 1.2 1.2 .7 .0 .2 .8 .6
.4 .7 .9 .8 .9 1.1 .6 .7 .8 .9 .7 -.9 .2 -.3 -.2 -.3 -.5 -.4 .9 1.4 .7 .5 -.5 -.1 .9 1.0 .8 .7 1.3 1.0 .2 .3 1.0 .5 .3 .4
.8 1.0 .8 .7 1.0 .8 .7 .5 .1 .3 .4 -.3 .0 -.1 -.3 -.1 .1 .7 1.4 1.3 .8 .7 1.1 .7 .4 .9 .6 .6 .5 .5 -.1 .4 .4 .6 -.2
.4 .7 1.0 .8 .6 .8 .5 .1 .5 .3 .0 .0 -.4 -.4 .1 -.4 -.3 .2 .6 .1 -1.0 .0 .2 .4 .3 .2 .1 .3 -.3 -.1 .1 -.3 .0 -.4 -.2 .0
.0 .1 .5 .0 .3 .0 .2 -.3 -.7 -.4 -.6 .6 .1 -1.6 -1.4 -.7 .1 .4 .3 .0 -1.2 -.4 .2 .8 1.2 1.4 -.5 -.5 -1.0 .8 -.4 -1.0 .2 -.5 .3
1.2 .2 -1.1 -.2 -.1 -.3 -.4 1.0 3.0 -.3 .5 -.6 -.8 .6 1.5

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
OCTOBER 1996 FIGURE 26
NOAA–12, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT



–.4 –.4 –.2 –.6 –.2 –.5 –.6 .1 .3 .1 –.6 –.5 –.8
.0 –.1 –.1 .0 –.4 –.6 –.9 .6 .6 .7 .1 –.4 –.5 –.6 –.9 –1.0 –1.0 –1.5 –1.7 –1.3 –1.1 –.8 –.4 –.3 .4 –.3 –.1 .0 .1 –.4 .0
.2 –.1 –.2 .2 .2 –.4 –.3 –.5 .1 –.1 –.7 –.9 –.5 –.3 .4 –.6 –.7 –.6 –.4 –.2 –.4 –.2 –.3 .0 .2 .0 .5 .7 .3
–.5 –.4 –.5 –.3 –.2 –.4 .0 .3 .1 –.1 .0 –.2 –.5 –.5 –.8 .0 .1 .0 .0 –.1 –.2 –.1 –.3 –.1 –.2 –.1 .1 .4 –.3 –.3 .0 –.2
–.4 –.1 .1 .1 –.1 .1 .2 .2 .1 –.2 –.2 –.2 .0 –.3 –.1 –.1 .0 –.1 –.3 –.4 –.7 –.9 –.5 –.3 –.1 .0 .0 .1 –.1 –.2
–.4 –.3 –.2 –.2 –.3 .1 –.1 .0 .0 .3 .0 –.1 –.1 .2 .3 .1 –.3 .2 –.1 –.4 –.5 –.7 –.5 –.8 –1.0 –1.3 –1.3 –.6 –.5 –.5 –.6 –.2 –.2 –.1 –.2
.0 .2 .3 –.1 .2 .3 .4 .5 .3 .3 .6 .6 .5 .6 .6 .2 –.2 –.1 –.1 –.5 –.6 .1 .0 .2 .4 .8 .3 .1 .0 .1 .2 .1 .0
.7 .8 .9 .9 .9 .9 .8 .8 .8 .7 .9 .9 .7 .8 .8 .6 .6 .7 .6 .4 .4 .6 .5 .8 .5 .7 .4 .6 .8 .5 .7 .6 .4 .5 .6 .7
.7 .7 .7 .7 .8 .8 .9 1.0 1.0 1.0 .8 .7 .7 .5 .4 .3 .4 .6 .5 .5 .7 .5 .5 .3 .3 .4 .2 .3 .3 .5 .4 .4 .4 .4 .6
.5 .5 .6 .5 .6 .6 .9 .9 1.2 1.2 .9 .8 .7 .8 .7 .5 .6 .7 .8 .8 .5 .4 .2 .3 .5 .4 .1 .3 .5 .5 .5 .3 .4 .4 .5
.4 .4 .6 .6 .5 .4 .5 .5 .7 1.0 1.3 1.1 .8 .8 .8 .7 .7 .7 .5 .5 .4 .4 .2 .2 .5 .7 .7 .6 .5 .2 .2 .4 .3 .4 .6 .3
.1 –.1 .2 .5 .4 .4 .1 .1 .3 .3 .2 .6 .6 .4 .2 .3 .0 .1 .2 .1 .0 .1 –.1 –.2 –.3 –.1 .0 .0 .3 –.1 –.2 –.2 .0 –.3 –.2 –.1
.0 –.1 –.2 –.2 .1 .0 .3 .5 .1 .0 –.2 –.2 .1 .2 .2 .0 –.3 .0 .1 .0 .3 .1 .1 .0 .1 –.1 –.1 .0 .0 –.1 .3 .3 .3 .4 .1 .2
.2 –.2 –.2 –.4 .0 –.1 .2 –.1 .0 .0 .3 .0 .0 .0 –.2 –.3 –.1 .1 –.1 .2 .1 .3 .4 .4 .2 .0 .0 .0 .0 .2 .2 .1 .1 .0 –.1
.1 .0 –.2 .1 –.2 –.1 .2 –.1 .0 .1 .0 .1 –.4 –.3 –.7 –1.0 .0 –.1 –.4 –.4 –.1 .2 .2 .2 .4 .0 .1 .2 .3 .1 .0 .0 –.1 –.2 –.3 –.2
–.1 .4 .4 .5 .1 .2 .3 .5 –.1 –.7 –.9 –.7 –.8 –.2 –.7 –.2 –.1 –.2 –.6 –.4 –.1 .2 .6 .5 .7 .7 .6 .6 .6 .6 .5 .5 .5 .5 .3
.3 .6 1.1 1.2 1.3 1.3 1.6 1.7 1.3 1.3 1.0 1.0 .7 1.1 .7 .8 .8 .7 .5 .3 .4 .7 .7 .9 .5 .7 1.1 1.7 .7 .7 1.9 1.3 .5
.6

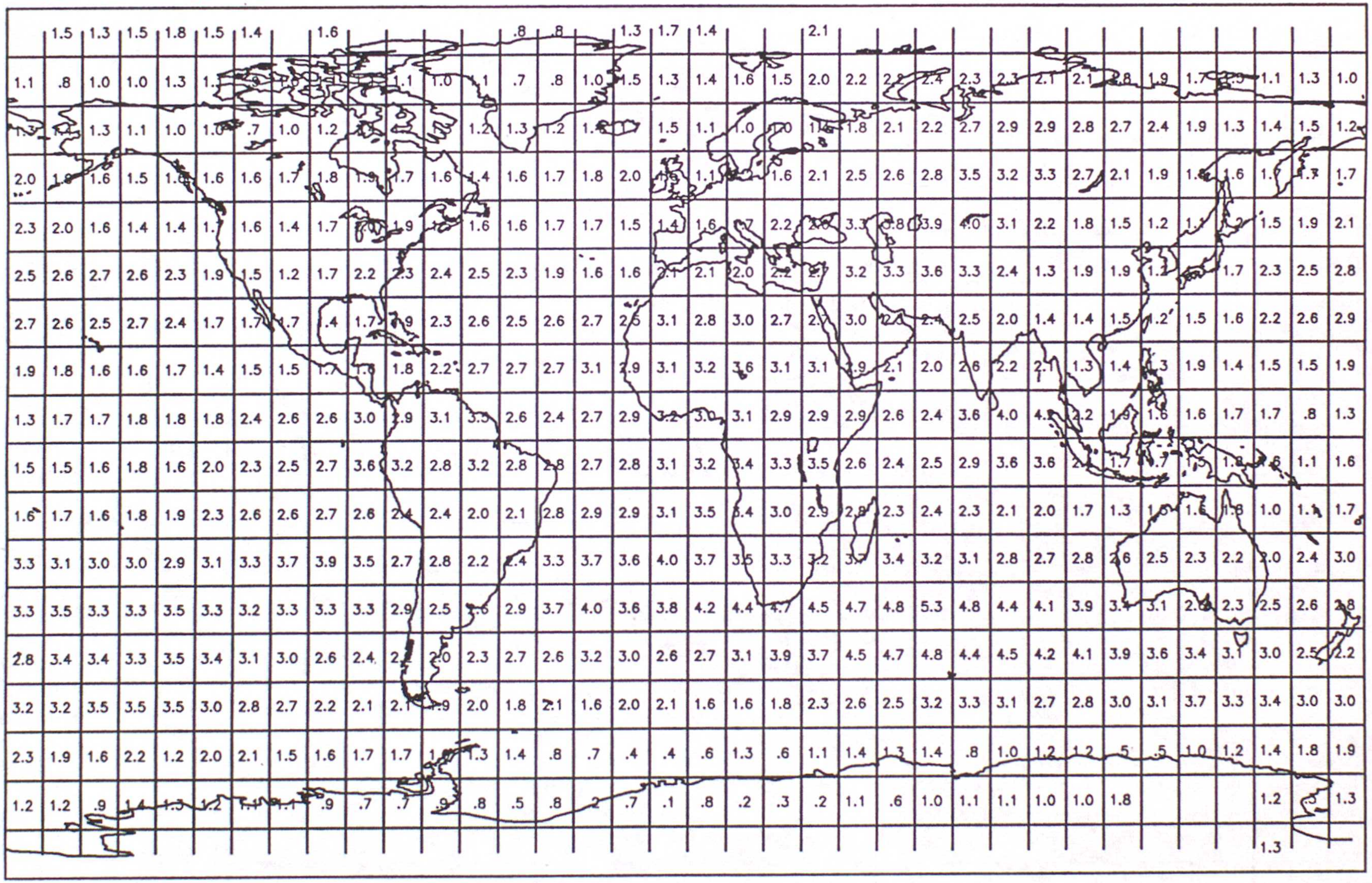
500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA

OCTOBER 1996

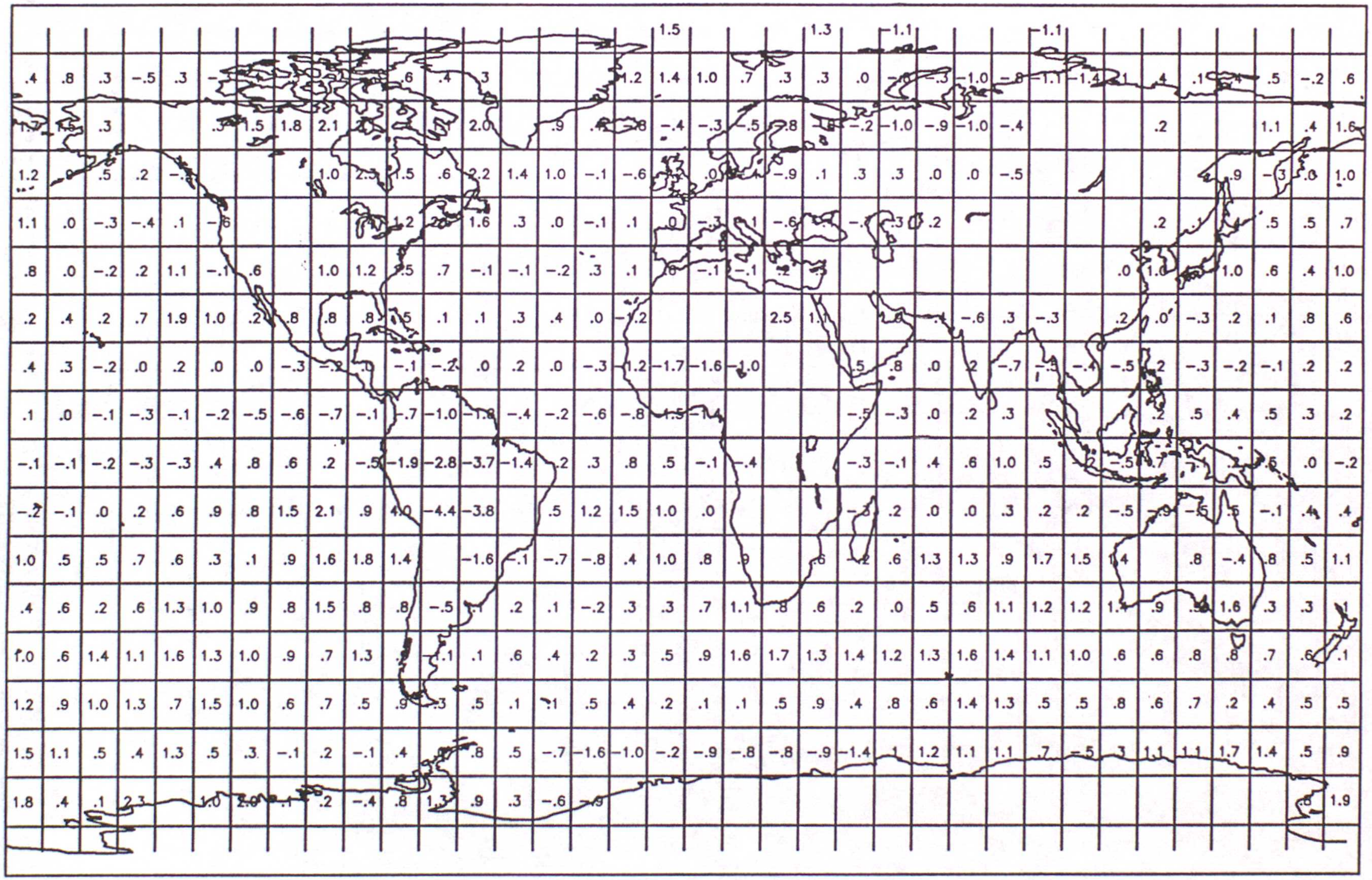
FIGURE 27

NOAA–12, USING ALL OBSERVATIONS

VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

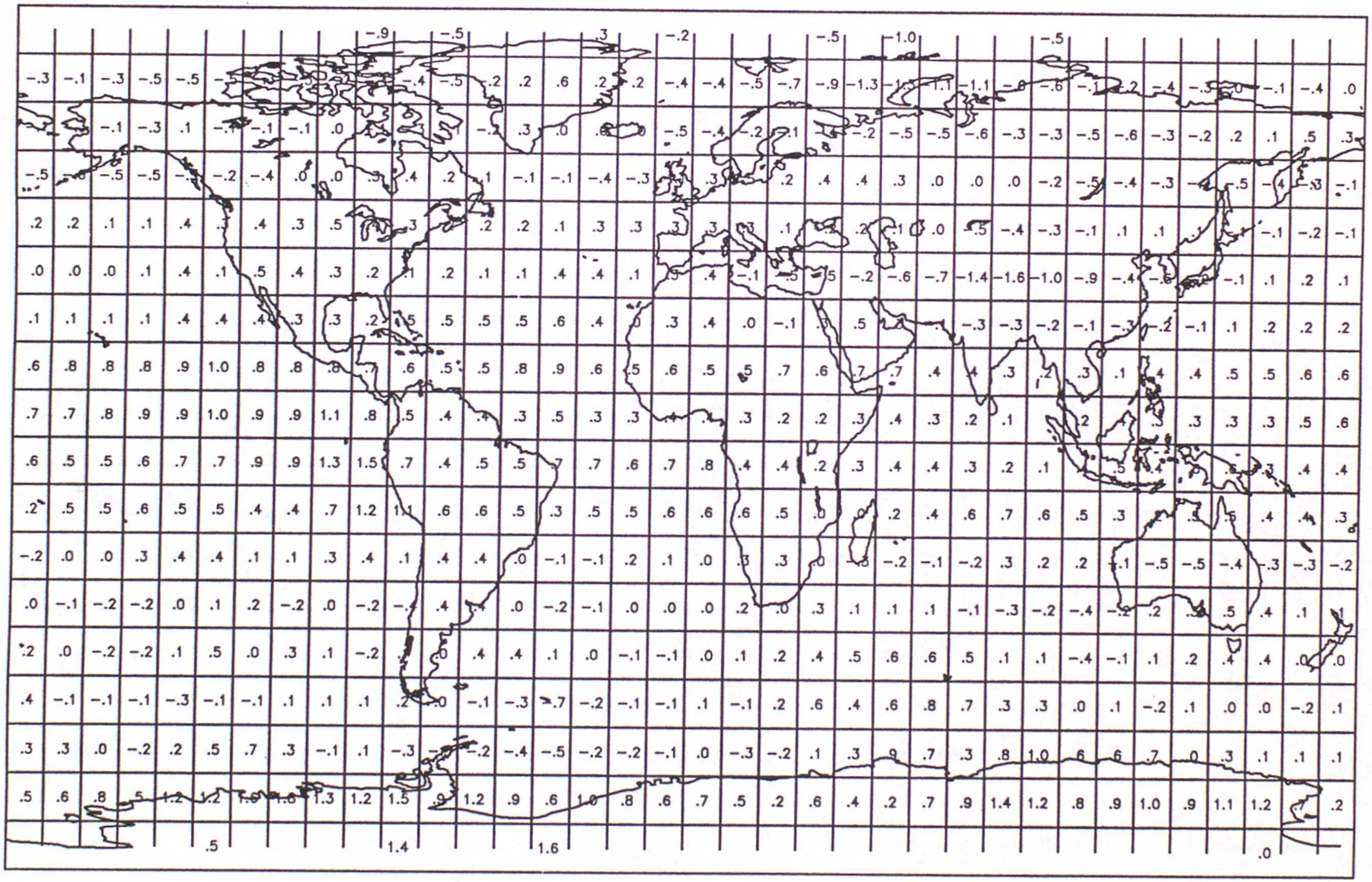

1.5 1.3 1.5 1.8 1.5 1.4 1.6 .8 .8 1.3 1.7 1.4 2.1
1.1 .8 1.0 1.0 1.3 1.1 1.0 1.1 .7 .8 1.0 1.5 1.3 1.4 1.6 1.5 2.0 2.2 2.4 2.3 2.3 2.1 2.1 2.8 1.9 1.7 1.1 1.3 1.0
1.3 1.1 1.0 1.0 .7 1.0 1.2 1.2 1.3 1.2 1.8 1.5 1.1 1.0 1.0 1.6 1.8 2.1 2.2 2.7 2.9 2.9 2.8 2.7 2.4 1.9 1.3 1.4 1.5 1.2
2.0 1.8 1.6 1.5 1.6 1.6 1.6 1.7 1.8 1.9 1.7 1.6 1.4 1.6 1.7 1.8 2.0 1.5 1.1 1.6 2.1 2.5 2.6 2.8 3.5 3.2 3.3 2.7 2.1 1.9 1.6 1.6 1.7 1.7 1.7
2.3 2.0 1.6 1.4 1.4 1.7 1.6 1.4 1.7 1.9 1.7 1.6 1.6 1.7 1.7 1.5 1.4 1.6 1.7 2.2 2.8 3.3 3.8 3.9 4.0 3.1 2.2 1.8 1.5 1.2 1.1 1.5 1.9 2.1
2.5 2.6 2.7 2.6 2.3 1.9 1.5 1.2 1.7 2.2 2.3 2.4 2.5 2.3 1.9 1.6 1.6 2.1 2.1 2.0 2.2 2.7 3.2 3.3 3.6 3.3 2.4 1.3 1.9 1.9 1.2 1.7 2.3 2.5 2.8
2.7 2.6 2.5 2.7 2.4 1.7 1.7 1.7 1.4 1.7 1.9 2.3 2.6 2.5 2.6 2.7 2.5 3.1 2.8 3.0 2.7 2.7 3.0 2.4 2.4 2.5 2.0 1.4 1.4 1.5 1.2 1.5 1.6 2.2 2.6 2.9
1.9 1.8 1.6 1.6 1.7 1.4 1.5 1.5 1.7 1.6 1.8 2.2 2.7 2.7 2.7 3.1 2.9 3.1 3.2 3.6 3.1 3.1 1.9 2.1 2.0 2.6 2.2 2.1 1.3 1.4 1.3 1.9 1.4 1.5 1.5 1.9
1.3 1.7 1.7 1.8 1.8 1.8 2.4 2.6 2.6 3.0 2.9 3.1 3.3 2.6 2.4 2.7 2.9 3.2 3.0 3.1 2.9 2.9 2.9 2.6 2.4 3.6 4.0 4.5 2.2 1.9 1.6 1.6 1.7 1.7 .8 1.3
1.5 1.5 1.6 1.8 1.6 2.0 2.3 2.5 2.7 3.6 3.2 2.8 3.2 2.8 2.8 2.7 2.8 3.1 3.2 3.4 3.3 3.5 2.6 2.4 2.5 2.9 3.6 3.6 2.1 1.7 1.7 1.5 1.3 1.6 1.1 1.6
1.6 1.7 1.6 1.8 1.9 2.3 2.6 2.6 2.7 2.6 2.4 2.4 2.0 2.1 2.8 2.9 2.9 3.1 3.5 3.4 3.0 2.9 2.8 2.3 2.4 2.3 2.1 2.0 1.7 1.3 1.6 1.6 1.8 1.0 1.1 1.7
3.3 3.1 3.0 3.0 2.9 3.1 3.3 3.7 3.9 3.5 2.7 2.8 2.2 2.4 3.3 3.7 3.6 4.0 3.7 3.5 3.3 3.2 3.7 3.4 3.2 3.1 2.8 2.7 2.8 2.6 2.5 2.3 2.2 2.0 2.4 3.0
3.3 3.5 3.3 3.3 3.5 3.3 3.2 3.3 3.3 3.3 2.9 2.5 2.6 2.9 3.7 4.0 3.6 3.8 4.2 4.4 4.7 4.5 4.7 4.8 5.3 4.8 4.4 4.1 3.9 3.4 3.1 2.6 2.3 2.5 2.6 2.8
2.8 3.4 3.4 3.3 3.5 3.4 3.1 3.0 2.6 2.4 2.2 2.0 2.3 2.7 2.6 3.2 3.0 2.6 2.7 3.1 3.9 3.7 4.5 4.7 4.8 4.4 4.5 4.2 4.1 3.9 3.6 3.4 3.1 3.0 2.5 2.2
3.2 3.2 3.5 3.5 3.5 3.0 2.8 2.7 2.2 2.1 2.1 1.9 2.0 1.8 2.1 1.6 2.0 2.1 1.6 1.6 1.8 2.3 2.6 2.5 3.2 3.3 3.1 2.7 2.8 3.0 3.1 3.7 3.3 3.4 3.0 3.0
2.3 1.9 1.6 2.2 1.2 2.0 2.1 1.5 1.6 1.7 1.7 1.6 1.3 1.4 .8 .7 .4 .4 .6 1.3 .6 1.1 1.4 1.3 1.4 .8 1.0 1.2 1.2 .5 .5 1.0 1.2 1.4 1.8 1.9
1.2 1.2 .9 1.4 1.3 1.2 1.1 1.1 .9 .7 .7 .9 .8 .5 .8 .2 .7 .1 .8 .2 .3 .2 1.1 .6 1.0 1.1 1.1 1.0 1.0 1.8 1.2 1.3
1.3

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 850 TO 1000 HPA
OCTOBER 1996 FIGURE 28
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT


1.5 1.3 –1.1 –1.1
.4 .8 .3 –.5 .3 .6 .4 .3 1.2 1.4 1.0 .7 .3 .3 .0 –.3 –1.0 –.8 –1.1 –1.4 .4 .1 .5 –.2 .6
1.5 .3 .3 1.5 1.8 2.1 2.0 .9 –.4 –.3 –.5 .8 –.2 –1.0 –.9 –1.0 –.4 .2 1.1 .4 1.6
1.2 .5 .2 1.0 2.3 1.5 .6 2.2 1.4 1.0 –.1 –.6 .0 –.9 .1 .3 .3 .0 .0 –.5 .9 –.3 .0 1.0
1.1 .0 –.3 –.4 .1 –.6 1.2 2.0 1.6 .3 .0 –.1 .1 .0 –.3 .1 –.6 .3 .2 .2 .5 .5 .7
.8 .0 –.2 .2 1.1 –.1 .6 1.0 1.2 .5 .7 –.1 –.1 –.2 .3 .1 .6 –.1 –.1 .2 .0 1.0 1.0 .6 .4 1.0
.2 .4 .2 .7 1.9 1.0 .2 .8 .8 .8 .5 .1 .1 .3 .4 .0 –1.2 2.5 1.1 –.6 .3 –.3 .2 .0 –.3 .2 .1 .8 .6
.4 .3 –.2 .0 .2 .0 .0 –.3 –.2 .0 –.1 –.2 .0 .2 .0 –.3 –1.2 –1.7 –1.6 –1.0 .5 .8 .0 .2 –.7 –.3 –.4 –.5 .2 –.3 –.2 –.1 .2 .2
.1 .0 –.1 –.3 –.1 –.2 –.5 –.6 –.7 –.1 –.7 –1.0 –1.8 –.4 –.2 –.6 –.8 –1.5 –1.4 –.5 –.3 .0 .2 .3 .2 .5 .4 .5 .3 .2
–.1 –.1 –.2 –.3 –.3 .4 .8 .6 .2 –.5 –1.9 –2.8 –3.7 –1.4 .2 .3 .8 .5 –.1 –.4 –.3 –.1 .4 .6 1.0 .5 .2 –.5 .7 .2 .6 .0 –.2
–.2 –.1 .0 .2 .6 .9 .8 1.5 2.1 .9 4.0 –4.4 –3.8 .5 1.2 1.5 1.0 .0 –.3 .2 .0 .0 .3 .2 .2 –.5 –.9 –.5 .5 –.1 .4 .4
1.0 .5 .5 .7 .6 .3 .1 .9 1.6 1.8 1.4 –1.6 –.1 –.7 –.8 .4 1.0 .8 .9 .6 –.2 .6 1.3 1.3 .9 1.7 1.5 1.4 .8 –.4 .8 .5 1.1
.4 .6 .2 .6 1.3 1.0 .9 .8 1.5 .8 .8 –.5 .1 .2 .1 –.2 .3 .3 .7 1.1 .8 .6 .2 .0 .5 .6 1.1 1.2 1.2 1.4 .9 .8 1.6 .3 .3 .1
1.0 .6 1.4 1.1 1.6 1.3 1.0 .9 .7 1.3 .1 .1 .6 .4 .2 .3 .5 .9 1.6 1.7 1.3 1.4 1.2 1.3 1.6 1.4 1.1 1.0 .6 .6 .8 .8 .7 .6 .1
1.2 .9 1.0 1.3 .7 1.5 1.0 .6 .7 .5 .9 .3 .5 .1 .1 .5 .4 .2 .1 .1 .5 .9 .4 .8 .6 1.4 1.3 .5 .5 .8 .6 .7 .2 .4 .5 .5
1.5 1.1 .5 .4 1.3 .5 .3 –.1 .2 –.1 .4 .8 .5 –.7 –1.6 –1.0 –.2 –.9 –.8 –.8 –.9 –1.4 .1 1.2 1.1 1.1 .7 –.5 .3 1.1 1.1 1.7 1.4 .5 .9
1.8 .4 .1 2.3 1.0 2.0 .1 .2 –.4 .8 1.3 .9 .3 –.6 –.9 .8 1.9

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 100 TO 300 HPA
OCTOBER 1996
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 29


-.9 -.5 .3 -.2 -.5 -1.0 -.5
-.3 -.1 -.3 -.5 -.5 -.4 -.5 .2 .2 .6 .2 .2 -.4 -.4 -.5 -.7 -.9 -1.3 -1.1 -.6 -.1 .2 -.4 -.3 -.1 -.4 .0
-.1 -.3 .1 -.1 -.1 .0 .3 .0 -.5 -.4 .2 .1 -.2 -.5 -.5 -.6 -.3 -.3 -.5 -.6 -.3 -.2 .2 .1 .5 .3
-.5 -.5 -.5 -.2 -.4 .0 .0 .4 .2 .1 -.1 -.1 -.4 -.3 .3 .2 .4 .4 .3 .0 .0 .0 -.2 -.4 -.3 -.5 -.4 .3 -.1
.2 .2 .1 .1 .4 .4 .3 .5 .3 .2 .2 .1 .3 .3 .3 .3 .3 .1 .2 .1 .0 .5 -.4 -.3 -.1 .1 .1 -.1 -.2 -.1
.0 .0 .0 .1 .4 .1 .5 .4 .3 .2 .1 .2 .1 .1 .4 .4 .1 .4 -.1 .5 .5 -.2 -.6 -.7 -1.4 -1.6 -1.0 -.9 -.4 .2 -.1 .1 .2 .1
.1 .1 .1 .1 .4 .4 .4 .3 .3 .2 .5 .5 .5 .5 .6 .4 .3 .4 .0 -.1 .5 -.3 -.3 -.2 -.1 -.3 .2 -.1 .1 .2 .2 .2
.6 .8 .8 .8 .9 1.0 .8 .8 .8 .7 .6 .5 .5 .8 .9 .6 .5 .6 .5 .5 .7 .6 .7 .7 .4 .4 .3 .2 .3 .1 .4 .4 .5 .5 .6 .6
.7 .7 .8 .9 .9 1.0 .9 .9 1.1 .8 .5 .4 .4 .3 .5 .3 .3 .4 .3 .2 .2 .3 .4 .3 .2 .1 .2 .3 .3 .3 .5 .6
.6 .5 .5 .6 .7 .7 .9 .9 1.3 1.5 .7 .4 .5 .5 .7 .7 .6 .7 .8 .4 .4 .2 .3 .4 .4 .3 .2 .1 .5 .4 .3 .4 .4
.2 .5 .5 .6 .5 .5 .4 .4 .7 1.2 1.1 .6 .6 .5 .3 .5 .5 .6 .6 .6 .5 .0 .2 .4 .6 .7 .6 .5 .3 .5 .4 .4 .3
-.2 .0 .0 .3 .4 .4 .1 .1 .3 .4 .1 .4 .4 .0 -.1 -.1 .2 .1 .0 .3 .3 .0 .3 -.2 -.1 -.2 .3 .2 .2 .1 -.5 -.5 -.4 -.3 -.3 -.2
.0 -.1 -.2 -.2 .0 .1 .2 -.2 .0 -.2 -.4 .4 .4 .0 -.2 -.1 .0 .0 .0 .2 .0 .3 .1 .1 .1 -.1 -.3 -.2 -.4 -.2 .2 .5 .5 .4 .1 .1
.2 .0 -.2 -.2 .1 .5 .0 .3 .1 -.2 .0 .4 .4 .1 .0 -.1 -.1 .0 .1 .2 .4 .5 .6 .6 .5 .1 .1 -.4 -.1 .1 .2 .4 .4 .0 .0
.4 -.1 -.1 -.1 -.3 -.1 -.1 .1 .1 .1 .2 .0 -.1 -.3 -.7 -.2 -.1 -.1 .1 -.1 .2 .6 .4 .6 .8 .7 .3 .3 .0 .1 -.2 .1 .0 .0 -.2 .1
.3 .3 .0 -.2 .2 .5 .7 .3 -.1 .1 -.3 -.2 -.4 -.5 -.2 -.2 -.1 .0 -.3 -.2 .1 .3 .9 .7 .3 .8 1.0 .6 .6 .7 .0 .3 .1 .1 .1
.5 .6 .8 .5 1.2 1.2 1.6 1.8 1.3 1.2 1.5 .9 1.2 .9 .6 1.0 .8 .6 .7 .5 .2 .6 .4 .2 .7 .9 1.4 1.2 .8 .9 1.0 .9 1.1 1.2 .7 .2
.5 1.4 1.6 .0

500 KM SATEMS : MEAN O–B TEMPERATURE DIFFERENCES (DEG C) : 30 TO 50 HPA
OCTOBER 1996
NOAA–14, USING ALL OBSERVATIONS
VALUES ARE PRINTED WHERE MORE THAN 30 OBS ARE PRESENT

FIGURE 30

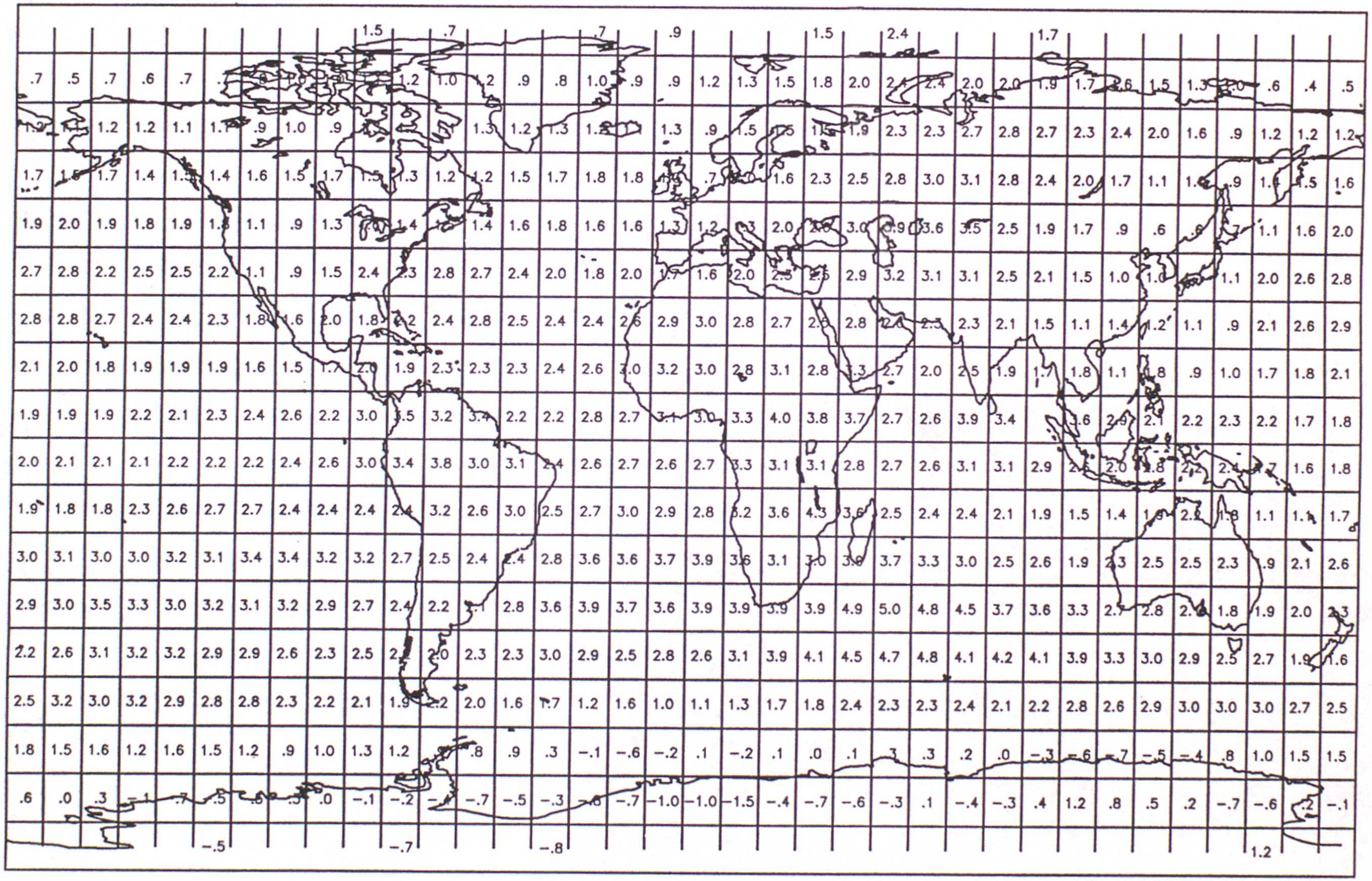

1.5 .7 .7 .9 1.5 2.4 1.7
.7 .5 .7 .6 .7 1.2 1.0 .2 .9 .8 1.0 .9 .9 1.2 1.3 1.5 1.8 2.0 2.4 2.4 2.0 2.0 1.9 1.7 .6 1.5 1.3 .0 .6 .4 .5
1.2 1.2 1.2 1.1 1.7 .9 1.0 .9 1.3 1.2 1.3 1.2 1.3 .9 1.5 1.5 1.5 1.9 2.3 2.3 2.7 2.8 2.7 2.3 2.4 2.0 1.6 .9 1.2 1.2 1.2
1.7 1.6 1.7 1.4 1.5 1.4 1.6 1.5 1.7 1.5 1.3 1.2 1.2 1.5 1.7 1.8 1.8 1.9 .7 2.0 1.6 2.3 2.5 2.8 3.0 3.1 2.8 2.4 2.0 1.7 1.1 1.6 .9 1.4 1.5 1.6
1.9 2.0 1.9 1.8 1.9 1.8 1.1 .9 1.3 1.4 1.4 1.4 1.6 1.8 1.6 1.6 1.3 1.2 1.3 2.0 2.6 3.0 2.9 3.6 3.5 2.5 1.9 1.7 .9 .6 .6 .7 1.1 1.6 2.0
2.7 2.8 2.2 2.5 2.5 2.2 1.1 .9 1.5 2.4 2.3 2.8 2.7 2.4 2.0 1.8 2.0 1.7 1.6 2.0 2.5 2.5 2.9 3.2 3.1 3.1 2.5 2.1 1.5 1.0 1.0 1.1 2.0 2.6 2.8
2.8 2.8 2.7 2.4 2.4 2.3 1.8 1.6 2.0 1.8 2.2 2.4 2.8 2.5 2.4 2.4 2.6 2.9 3.0 2.8 2.7 2.5 2.8 2.6 2.3 2.3 2.1 1.5 1.1 1.4 1.2 1.1 .9 2.1 2.6 2.9
2.1 2.0 1.8 1.9 1.9 1.9 1.6 1.5 1.7 2.0 1.9 2.3 2.3 2.3 2.4 2.6 3.0 3.2 3.0 2.8 3.1 2.8 1.3 2.7 2.0 2.5 1.9 1.7 1.8 1.1 .8 .9 1.0 1.7 1.8 2.1
1.9 1.9 1.9 2.2 2.1 2.3 2.4 2.6 2.2 3.0 3.5 3.2 3.4 2.2 2.2 2.8 2.7 3.1 3.0 3.3 4.0 3.8 3.7 2.7 2.6 3.9 3.4 .6 2.4 2.1 2.2 2.3 2.2 1.7 1.8
2.0 2.1 2.1 2.1 2.2 2.2 2.2 2.4 2.6 3.0 3.4 3.8 3.0 3.1 2.4 2.6 2.7 2.6 2.7 3.3 3.1 3.1 2.8 2.7 2.6 3.1 3.1 2.9 2.6 2.0 1.8 2.2 2.4 1.7 1.6 1.8
1.9 1.8 1.8 2.3 2.6 2.7 2.7 2.4 2.4 2.4 2.4 3.2 2.6 3.0 2.5 2.7 3.0 2.9 2.8 3.2 3.6 4.3 3.6 2.5 2.4 2.4 2.1 1.9 1.5 1.4 1.9 2.2 1.8 1.1 1.1 1.7
3.0 3.1 3.0 3.0 3.2 3.1 3.4 3.4 3.2 3.2 2.7 2.5 2.4 2.4 2.8 3.6 3.6 3.7 3.9 3.6 3.1 3.0 3.9 3.7 3.3 3.0 2.5 2.6 1.9 2.3 2.5 2.5 2.3 .9 2.1 2.6
2.9 3.0 3.5 3.3 3.0 3.2 3.1 3.2 2.9 2.7 2.4 2.2 2.1 2.8 3.6 3.9 3.7 3.6 3.9 3.9 3.9 3.9 4.9 5.0 4.8 4.5 3.7 3.6 3.3 2.7 2.8 2.8 1.8 1.9 2.0 2.3
2.2 2.6 3.1 3.2 3.2 2.9 2.9 2.6 2.3 2.5 2.2 2.0 2.3 2.3 3.0 2.9 2.5 2.8 2.6 3.1 3.9 4.1 4.5 4.7 4.8 4.1 4.2 4.1 3.9 3.3 3.0 2.9 2.5 2.7 1.9 1.6
2.5 3.2 3.0 3.2 2.9 2.8 2.8 2.3 2.2 2.1 1.9 2.2 2.0 1.6 1.7 1.2 1.6 1.0 1.1 1.3 1.7 1.8 2.4 2.3 2.3 2.4 2.1 2.2 2.8 2.6 2.9 3.0 3.0 3.0 2.7 2.5
1.8 1.5 1.6 1.2 1.6 1.5 1.2 .9 1.0 1.3 1.2 .8 .9 .3 –.1 –.6 –.2 .1 –.2 .1 .0 .1 .3 .3 .2 .0 –.3 –.6 –.7 –.5 –.4 .8 1.0 1.5 1.5
.6 .0 .3 –.1 .7 .5 .6 .3 .0 –.1 –.2 –.4 –.7 –.5 –.3 –.6 –.7 –1.0 –1.0 –1.5 –.4 –.7 –.6 –.3 .1 –.4 –.3 .4 1.2 .8 .5 .2 –.7 –.6 .2 –.1
–.5 –.7 –.8 1.2

TABLE 8

MONTHLY MONITORING OF MARINE SURFACE OBSERVATIONS (COSNA)
DATA TYPE:- DRIFTER
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for drifting buoy.
Area monitored		:10°N - 80°N, 85°W - 0°W
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:All hours combined.
Elements monitored		:Mean sea-level pressure (hPa) :Wind speed (m s^{-1}) :Wind direction (degrees)
Parameters monitored		
	:NOBS	:Number of observations received excluding duplicates.
	:NGE	:Number of observations with gross errors.
	:PGE	:Percentage of observations with gross errors.
	:SD	:SD of difference of observations from background values excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors. **N.B. A positive bias indicates the observation is veered to the background**
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors
GROSS ERROR LIMITS	:15 hPa (pressure) :25 m s^{-1} (Vector Wind)	

N.B. Observations of wind direction are only included in the wind direction statistics if the observed OR background wind speed > 5 m s^{-1}

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
13903	22.4	-33.1	ALL	MSLP	SUR	225	0	0	0.7	0.3	0.8
13905	20.3	-38.4	ALL	MSLP	SUR	243	0	0	0.8	0.1	0.8
13906	10.3	-37.9	ALL	MSLP	SUR	232	0	0	1.0	0.2	1.0
13910	17.6	-41.7	ALL	MSLP	SUR	223	0	0	1.0	0.4	1.1
13911	16.5	-50.7	ALL	MSLP	SUR	253	0	0	1.2	0.6	1.3
13912	20.1	-51.6	ALL	MSLP	SUR	249	0	0	1.1	0.7	1.3
13913	17.1	-35.1	ALL	MSLP	SUR	240	0	0	0.8	0.4	0.9
13915	14.5	-33.2	ALL	MSLP	SUR	241	0	0	0.8	0.0	0.8
25565	63.6	-5.8	ALL	MSLP	SUR	359	0	0	1.8	0.0	1.8
41527	30.7	-77.8	ALL	MSLP	SUR	163	0	0	1.1	0.1	1.1
41529	38.1	-63.9	ALL	MSLP	SUR	200	0	0	1.2	0.0	1.2
41530	38.9	-58.3	ALL	MSLP	SUR	202	0	0	1.1	-0.1	1.1
41611	12.6	-45.8	ALL	MSLP	SUR	189	0	0	0.9	-0.2	0.9
41612	12.5	-47.3	ALL	MSLP	SUR	195	0	0	0.9	0.0	0.9
41613	16.2	-47.1	ALL	MSLP	SUR	196	0	0	1.0	-0.1	1.0
41614	14.1	-44.7	ALL	MSLP	SUR	196	0	0	0.9	-0.1	0.9
41922	23.9	-46.5	ALL	MSLP	SUR	271	0	0	1.0	0.9	1.3
41924	11.2	-47.3	ALL	MSLP	SUR	225	0	0	1.2	0.2	1.2
44513	53.4	-51.2	ALL	MSLP	SUR	342	0	0	1.3	-0.4	1.3
44614	62.2	-19.9	ALL	MSLP	SUR	1192	83	7	1.7	0.0	1.7
44616	64.3	-4.6	ALL	MSLP	SUR	1721	1	0	1.5	0.9	1.7
44617	48.5	-33.5	ALL	MSLP	SUR	395	0	0	1.9	-0.1	1.9
44727	32.9	-17.1	ALL	MSLP	SUR	1	1	100	0.0	0.0	0.0
44728	63.9	-12.7	ALL	MSLP	SUR	54	53	98	0.0	6.6	6.6
44743	50.5	-44.5	ALL	MSLP	SUR	306	15	5	3.8	-1.5	4.1
44760	24.6	-61.6	ALL	MSLP	SUR	325	3	1	1.0	0.4	1.1
44763	60.4	-20.5	ALL	MSLP	SUR	1818	2	0	1.7	-0.1	1.7
44765	62.3	-12.7	ALL	MSLP	SUR	1625	11	1	1.8	-0.3	1.8
44766	51.9	-27.8	ALL	MSLP	SUR	452	0	0	2.0	-0.4	2.0
44767	60.6	-18.7	ALL	MSLP	SUR	1746	3	0	1.7	-0.1	1.7
44768	63.2	-36.6	ALL	MSLP	SUR	1	0	0	0.0	3.5	3.5
44769	61.4	-6.7	ALL	MSLP	SUR	1717	65	4	1.6	0.2	1.7
44770	25.8	-58.0	ALL	MSLP	SUR	574	1	0	0.9	0.5	1.1
44771	56.4	-12.1	ALL	MSLP	SUR	1591	9	1	1.4	0.0	1.4
44772	58.6	-19.6	ALL	MSLP	SUR	1699	3	0	1.8	-0.6	1.9
44774	51.2	-10.9	ALL	MSLP	SUR	1073	8	1	1.6	0.0	1.6
44775	52.9	-35.8	ALL	MSLP	SUR	616	9	1	1.8	-0.2	1.8
44776	55.1	-46.5	ALL	MSLP	SUR	398	5	1	1.3	-0.2	1.3
44777	58.1	-34.5	ALL	MSLP	SUR	917	2	0	1.5	-0.3	1.5
44778	55.0	-29.7	ALL	MSLP	SUR	779	6	1	1.8	-0.2	1.8
44780	54.8	-40.2	ALL	MSLP	SUR	407	0	0	1.4	-0.3	1.5
44911	54.2	-44.5	ALL	MSLP	SUR	95	0	0	1.0	-0.1	1.0
44917	57.0	-53.1	ALL	MSLP	SUR	4	0	0	0.2	-1.3	1.3
44918	57.3	-51.6	ALL	MSLP	SUR	3	0	0	0.4	-1.3	1.4
44919	56.0	-53.0	ALL	MSLP	SUR	4	0	0	0.2	-1.0	1.0
44923	54.6	-49.3	ALL	MSLP	SUR	1	0	0	0.0	0.4	0.4
44924	56.6	-53.2	ALL	MSLP	SUR	2	0	0	0.1	-1.7	1.7
47541	72.5	-73.6	ALL	MSLP	SUR	130	0	0	0.7	0.2	0.7
62503	39.7	-14.6	ALL	MSLP	SUR	556	0	0	0.9	-0.1	0.9
62504	39.6	-11.8	ALL	MSLP	SUR	580	0	0	0.9	-0.1	0.9
62507	40.8	-23.1	ALL	MSLP	SUR	230	0	0	2.0	0.5	2.0
62508	49.3	-20.2	ALL	MSLP	SUR	653	0	0	1.7	0.2	1.7
62510	39.8	-16.8	ALL	MSLP	SUR	599	0	0	1.1	0.1	1.1
62513	44.4	-18.5	ALL	MSLP	SUR	580	0	0	1.2	0.5	1.3
62515	48.1	-19.6	ALL	MSLP	SUR	627	0	0	1.6	0.0	1.6
62516	45.0	-16.0	ALL	MSLP	SUR	599	8	1	2.8	-0.9	3.0
62517	49.7	-19.0	ALL	MSLP	SUR	615	0	0	1.5	-0.2	1.5
62518	46.1	-19.2	ALL	MSLP	SUR	150	0	0	2.9	-0.5	2.9
62910	60.1	-44.8	ALL	MSLP	SUR	145	0	0	4.2	-2.4	4.8
64513	56.0	-12.4	ALL	MSLP	SUR	169	0	0	2.1	-0.3	2.1

IDENTIFIER	LAT.	LONG.	HOUR	ELEM	LEVEL	NOBS	NGE	PGE	SD	BIAS	RMS
MEAN SEA LEVEL PRESSURE											
64514	57.5	-11.9	ALL	MSLP	SUR	207	0	0	1.6	-0.2	1.6
65594	59.4	-32.1	ALL	MSLP	SUR	1771	4	0	1.5	-0.2	1.5
65595	61.5	-27.1	ALL	MSLP	SUR	1658	2	0	1.9	-0.4	1.9
65598	61.9	-35.5	ALL	MSLP	SUR	1590	3	0	1.7	-0.8	1.9
65599	53.3	-49.6	ALL	MSLP	SUR	1188	2	0	1.5	-0.5	1.6
WIND SPEED											
41527	30.7	-77.8	ALL	SPEED	SUR	153	0	0	1.7	-0.1	1.7
41529	38.1	-63.9	ALL	SPEED	SUR	190	0	0	2.3	-0.1	2.3
41530	38.9	-58.3	ALL	SPEED	SUR	197	0	0	2.3	-0.8	2.5
41611	12.6	-45.8	ALL	SPEED	SUR	189	0	0	1.2	0.9	1.5
41612	12.5	-47.3	ALL	SPEED	SUR	194	0	0	1.4	-0.4	1.5
41613	16.2	-47.1	ALL	SPEED	SUR	195	0	0	1.0	0.2	1.1
41614	14.1	-44.7	ALL	SPEED	SUR	193	0	0	1.2	-0.4	1.2
44513	53.4	-51.2	ALL	SPEED	SUR	289	0	0	2.6	-5.4	6.0
44775	52.9	-35.8	ALL	SPEED	SUR	85	10	12	4.8	12.2	13.1
44776	55.1	-46.5	ALL	SPEED	SUR	380	4	1	2.8	-1.6	3.2
62516	45.0	-16.0	ALL	SPEED	SUR	592	0	0	1.9	0.1	1.9
62518	46.1	-19.2	ALL	SPEED	SUR	452	0	0	2.4	-0.1	2.4
WIND DIRECTION											
41527	30.7	-77.8	ALL	DIRN.	SUR	123	0	0	21.7	1.8	21.7
41529	38.1	-63.9	ALL	DIRN.	SUR	176	0	0	16.4	4.0	16.9
41530	38.9	-58.3	ALL	DIRN.	SUR	184	0	0	25.3	1.8	25.4
41611	12.6	-45.8	ALL	DIRN.	SUR	173	0	0	28.4	4.3	28.7
41612	12.5	-47.3	ALL	DIRN.	SUR	150	0	0	22.9	-0.8	22.9
41613	16.2	-47.1	ALL	DIRN.	SUR	194	0	0	18.0	9.1	20.2
41614	14.1	-44.7	ALL	DIRN.	SUR	186	0	0	26.2	1.2	26.3
44513	53.4	-51.2	ALL	DIRN.	SUR	245	0	0	16.7	28.0	32.6
44775	52.9	-35.8	ALL	DIRN.	SUR	85	10	12	53.3	29.0	60.7
44776	55.1	-46.5	ALL	DIRN.	SUR	279	4	1	24.8	22.8	33.7
62516	45.0	-16.0	ALL	DIRN.	SUR	518	0	0	15.8	-12.2	20.0
62518	46.1	-19.2	ALL	DIRN.	SUR	425	0	0	25.0	-11.6	27.6

TABLE 9

MONTHLY MONITORING OF AIRCRAFT OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Statistics for each airline carrier.
Area monitored		:40°N - 70°N, 60°W - 0°W.
Standard of comparison		:Background field from Bracknell global model.
Observation times		:All hours combined.
Level(s) monitored		:300.0 - 150.0 hPa
Elements monitored		:TEMP in °C ; WIND in m s^{-1}
Parameters monitored	:N REP.	:Number of observations received excluding duplicates.
	:PG	:Percentage of observations with gross errors.
	:PR	:Percentage of observations rejected by quality control including rejections from the duplicate check.
	:PC	:Percentage of observations with calm winds.
	:RMS	:Root Mean Square difference of observations from background values excluding those with gross errors in Temperature & vector wind.
	:BIAS	:Mean difference of observations from background values excluding those with gross errors in Temperature & vector wind.
GROSS ERROR LIMITS	:10.0 °C ; 60 m s^{-1} Vector Wind	
SELECTION CRITERIA	:N REP $\geq$ 20	

	TEMPERATURE					WIND					
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
AAL	3775	1	1	1.8	-0.1	3789	0	1	0	8.0	1.3
AAN	141	1	7	1.8	-0.5	136	0	7	0	8.0	-0.4
ACA	1097	0	1	1.9	0.2	1127	0	2	0	8.3	0.3
AEA	423	1	100	3.0	1.3	415	0	4	0	10.2	1.4
AEL	474	3	7	2.0	0.1	479	0	6	0	9.6	0.4
AFL	155	0	100	3.0	1.4	157	0	6	1	9.0	0.2
AFR	872	0	5	1.9	-0.1	883	0	5	0	8.2	0.7
AIH	160	0	2	2.0	0.1	158	0	4	0	10.9	0.4
AJM	29	3	10	2.1	-0.2	33	0	3	0	11.1	0.6
AMX	168	1	4	1.7	0.1	171	0	5	0	10.5	1.2
ANZ	230	0	0	2.0	-1.0	231	0	2	2	5.7	-0.1
AOM	129	2	3	2.0	1.1	130	1	3	0	7.8	0.7
AUA	99	1	2	1.8	-0.7	101	0	1	0	7.9	1.6
AVA	83	1	4	2.1	0.0	83	1	4	0	8.2	0.1
AZA	490	0	4	2.5	0.8	500	0	3	0	8.0	1.7
BAL	382	0	16	1.9	-0.2	388	0	20	0	9.8	0.5
BAW	1577	0	3	1.9	-0.2	1590	0	4	0	8.5	0.9
BBB	31	0	3	1.7	-0.4	29	0	10	0	8.0	1.9
BWA	82	2	12	3.4	2.6	85	0	15	1	13.0	-0.6
CDN	833	0	2	2.1	0.7	843	0	3	0	8.1	0.7
CFG	535	1	3	2.2	-1.1	544	0	4	0	9.4	0.4
CKT	69	0	4	1.8	0.8	71	0	11	0	8.9	0.7
CLI	106	0	3	2.3	0.3	106	0	3	0	7.1	0.9
CLX	220	0	1	2.2	-0.6	223	0	2	0	7.9	0.3
CMM	195	1	3	1.9	0.0	196	0	4	0	7.3	1.7
COA	581	1	2	2.0	0.7	579	0	3	0	9.5	0.5
CRL	128	1	2	1.8	0.8	132	0	5	2	9.7	0.8
CSA	52	0	2	2.0	-0.6	51	0	4	2	7.1	1.5
CUB	158	3	100	2.3	1.3	158	0	7	0	9.5	1.8
DAF	29	0	3	1.7	-1.1	29	0	7	0	10.8	-1.2
DAL	2666	1	1	1.9	0.4	2679	0	2	0	8.8	1.0
DHL	445	7	100	3.9	-1.4	446	0	83	0	10.1	0.0
DLH	2704	0	8	1.9	0.3	2728	0	10	1	8.2	0.8
DOA	53	0	6	2.0	-0.1	53	0	2	0	8.9	-0.6
EIN	26	0	4	2.2	0.7	26	0	4	0	9.2	1.9
ELY	112	0	12	2.1	-0.2	115	0	13	0	10.0	0.8
EWW	166	0	100	2.6	0.3	164	1	100	0	15.6	3.3
FDX	699	0	2	1.8	0.5	711	0	3	0	8.8	0.3
FIN	323	0	2	2.0	0.6	321	0	3	0	9.1	0.9
GAF	124	2	2	1.6	0.2	123	0	3	1	9.3	1.2
GFA	24	0	8	1.6	0.1	26	0	12	0	8.7	-0.4
GTI	52	0	0	1.7	0.5	50	0	4	0	10.8	-0.2
HLF	122	1	2	2.0	-0.6	121	0	2	0	10.0	0.6
IBE	1397	1	23	2.1	0.4	1404	0	25	0	10.8	1.0
ICE	710	0	0	1.7	0.0	707	0	1	0	7.6	0.0
KLM	1966	0	1	1.8	0.2	1972	0	2	0	8.5	0.8
LDA	113	0	10	1.7	-0.9	114	0	10	0	7.3	0.8
LDI	96	0	25	1.8	-1.3	96	0	25	0	7.2	0.2
LIB	40	3	5	1.7	0.8	42	0	5	0	9.3	0.8
LKR	35	0	3	2.1	0.3	38	0	0	0	9.4	3.4
LOT	310	0	2	2.3	-1.2	307	0	1	0	7.5	0.4
LTU	463	0	4	1.8	0.3	463	0	6	0	9.1	0.9
MPH	542	0	1	2.0	-0.3	549	0	0	0	8.4	0.7
NWA	2812	1	2	2.1	0.8	2880	0	2	0	8.6	0.7
OAL	27	0	4	2.3	1.3	27	0	4	0	6.9	1.4
PAC	44	0	11	2.4	1.2	46	0	11	0	7.3	1.3
RCH	211	5	100	2.9	-0.4	235	0	100	0	15.8	2.1
RJA	75	0	3	2.3	0.5	75	0	1	0	8.5	0.9
RRR	194	1	20	2.7	-0.5	194	0	16	0	8.4	1.0

		TEMPERATURE						WIND			
IDENT.	N.REP.	PG	PR	RMS	BIAS	N.REP.	PG	PR	PC	RMS	BIAS
SAA	27	0	22	2.9	2.7	28	0	29	0	9.8	0.7
SAB	72	0	0	1.7	0.8	73	1	3	0	7.1	1.1
SAS	1000	0	2	2.5	0.6	999	0	2	1	7.9	0.6
SCX	21	5	5	2.1	1.1	27	0	0	0	7.6	-2.3
SIA	63	0	8	2.2	-1.1	66	0	9	2	13.0	0.6
SLR	40	0	20	2.0	-0.5	40	0	23	0	7.5	0.9
SVA	99	0	3	2.1	0.7	102	0	21	0	12.7	2.1
SWR	228	0	4	2.0	0.3	226	0	4	0	8.5	1.1
TAP	348	1	5	1.4	-0.3	348	1	6	0	9.6	1.1
TEJ	78	0	15	1.9	0.0	78	0	18	0	10.0	0.8
THY	25	4	8	2.5	0.7	25	0	8	0	10.5	2.0
TOW	94	0	0	1.5	0.0	93	0	2	0	8.6	1.7
TSC	147	0	1	1.9	0.0	147	0	5	1	9.9	1.0
TWA	1527	0	2	2.0	0.2	1521	0	3	0	9.4	1.2
UAL	1942	0	2	2.2	-1.0	1960	0	2	0	8.2	0.7
ULE	124	1	2	2.2	0.7	124	0	2	0	8.8	1.9
UPS	577	1	16	1.8	0.1	595	1	17	0	8.8	1.1
USA	491	0	2	1.6	-0.2	488	0	2	0	8.4	1.3
VIA	77	3	6	1.7	0.8	79	0	6	0	7.5	0.4
VIR	239	0	1	1.6	-0.1	243	0	2	0	7.8	1.8
WOA	26	0	4	2.1	1.5	26	0	4	0	5.5	0.8
BA	6092	0	12	1.4	0.6	6092	0	12	0	7.5	1.2
IT	53	0	0	0.7	-0.1	53	0	0	0	7.3	-0.7
KL	2579	3	15	1.4	0.3	2579	0	15	0	8.2	1.1
LH	372	0	15	1.8	0.3	372	0	15	0	6.9	0.5
N	359	2	4	2.8	0.7	370	0	5	0	10.7	0.8

TABLE 10

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	100	11	0	18.2	23.4	14.7
DBBH	12	Z	100	23	0	39.2	47.1	26.0
DBLK	00	Z	100	1	0	0.0	35.0	35.0
DBLK	12	Z	100	14	0	13.7	17.3	10.6
FNOR	00	Z	100	9	0	14.7	17.9	10.3
FNOR	12	Z	100	8	0	9.6	9.7	1.5
FNOU	00	Z	100	9	0	17.2	24.5	17.4
FNOU	12	Z	100	6	0	17.1	18.3	6.7
FNPH	00	Z	100	15	0	11.7	12.7	-4.7
FNPH	12	Z	100	13	0	15.3	19.3	-11.8
FNRS	00	Z	100	7	0	12.7	13.5	4.4
FNRS	12	Z	100	7	0	9.6	13.1	-8.9
JBOA	00	Z	100	1	0	0.0	19.0	19.0
JCCX	00	Z	100	1	0	0.0	22.0	22.0
JIVB	00	Z	100	1	0	0.0	22.0	22.0
LDWR	00	Z	100	27	0	28.1	28.1	0.3
LDWR	12	Z	100	24	0	12.5	13.6	-5.3
NPH	00	Z	100	1	0	0.0	4.0	4.0
OR	00	Z	100	1	0	0.0	0.0	0.0
OXVH2	00	Z	100	21	0	19.4	20.5	6.7
OXVH2	12	Z	100	19	0	25.2	28.7	13.7
OXYH2	00	Z	100	15	0	14.7	14.9	2.9
OXYH2	12	Z	100	15	0	19.8	19.8	0.1
SHIP	12	Z	100	1	0	0.0	51.0	51.0
SHIPAF	00	Z	100	3	0	14.6	17.0	8.7
SHIPAF	12	Z	100	5	0	14.4	48.8	46.6
SHIPPPS	00	Z	100	1	0	0.0	64.0	64.0
SHIPS	00	Z	100	9	0	21.1	31.5	23.4
SHIPS	12	Z	100	11	0	44.2	70.8	55.4
V2EZ	00	Z	100	12	0	45.0	51.1	24.1
V2EZ	12	Z	100	8	0	18.5	23.2	13.9
V2GH	00	Z	100	17	0	18.7	30.0	-23.5
V2GH	12	Z	100	14	0	24.8	29.1	-15.1
V2LV	00	Z	100	28	0	15.8	21.5	14.7
V2LV	12	Z	100	22	0	15.5	21.5	15.0
WTEU	00	Z	100	2	0	15.5	20.6	13.5
ZDLG	12	Z	100	6	0	12.1	16.8	11.7
03953	00	Z	100	30	0	17.7	19.5	8.2
03953	12	Z	100	28	0	14.1	14.9	4.6
04018	00	Z	100	29	0	19.6	38.9	33.6
04018	12	Z	100	30	0	24.0	34.8	25.3
04220	00	Z	100	29	0	13.9	29.2	25.6
04220	12	Z	100	29	0	11.7	32.5	30.3
04270	00	Z	100	27	0	28.6	28.7	1.8
04270	12	Z	100	29	0	19.9	21.3	7.6
04339	00	Z	100	31	0	22.8	39.8	32.6
04339	12	Z	100	31	0	16.7	26.1	20.1
04360	00	Z	100	29	0	14.3	21.9	16.6
04360	12	Z	100	30	0	17.8	22.5	13.8
08001	00	Z	100	24	0	14.0	17.2	10.0
08001	12	Z	100	25	0	13.9	14.1	-2.6
08508	00	Z	100	29	0	20.5	20.7	3.1
08508	12	Z	100	27	1	24.1	24.3	2.9
60020	00	Z	100	31	0	12.7	22.5	18.5
60020	12	Z	100	30	0	13.7	14.0	2.8
71600	00	Z	100	29	0	15.0	20.3	13.7
71600	12	Z	100	29	0	12.1	24.6	21.4
72201	00	Z	100	26	0	43.4	51.4	27.5
72201	12	Z	100	26	1	61.9	71.1	35.0
72402	00	Z	100	26	0	19.7	29.3	21.7
72402	12	Z	100	28	0	19.9	41.7	36.7
74494	00	Z	100	22	0	27.6	27.8	3.4
74494	12	Z	100	28	0	26.7	35.8	23.9
78016	00	Z	100	16	0	13.8	13.9	-1.3
78016	12	Z	100	30	0	17.5	18.8	6.8

TABLE 11

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures:

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:GEOPOTENTIAL HEIGHT in metres
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:SD	:SD of difference of observations from background values at level shown excluding those with gross errors.
	:BIAS	:Mean difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.1

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
DBBH	00	Z	500	13	0	21.9	25.4	12.9
DBBH	12	Z	500	23	0	29.5	31.7	11.7
DBLK	00	Z	500	1	0	0.0	15.0	15.0
DBLK	12	Z	500	14	0	21.8	22.6	6.0
FNOR	00	Z	500	10	0	12.4	15.8	9.8
FNOR	12	Z	500	9	0	6.8	14.4	12.7
FNOU	00	Z	500	13	0	12.4	18.1	13.2
FNOU	12	Z	500	8	0	8.7	11.4	7.4
FNPH	00	Z	500	15	0	8.3	8.8	-3.1
FNPH	12	Z	500	13	0	7.9	8.0	1.0
FNRS	00	Z	500	7	0	9.0	10.1	-4.6
FNRS	12	Z	500	7	0	7.4	10.0	-6.7
JBOA	00	Z	500	1	0	0.0	4.0	-4.0
JCCX	00	Z	500	1	0	0.0	1.0	1.0
JIVB	00	Z	500	1	0	0.0	9.0	9.0
LDWR	00	Z	500	26	0	12.6	16.9	11.2
LDWR	12	Z	500	23	0	11.8	13.6	6.8
NPH	00	Z	500	1	0	0.0	13.0	-13.0
OXVH2	00	Z	500	21	0	12.4	12.9	3.8
OXVH2	12	Z	500	19	0	22.9	23.0	-2.4
OXYH2	00	Z	500	17	0	12.9	12.9	-0.1
OXYH2	12	Z	500	15	0	15.3	16.0	-4.6
SHIP	00	Z	500	1	0	0.0	3.0	3.0
SHIP	12	Z	500	2	0	4.0	4.5	2.0
SHIPAF	00	Z	500	4	0	12.5	25.1	21.8
SHIPAF	12	Z	500	6	0	7.2	13.2	11.0
SHIPPPS	00	Z	500	1	0	0.0	15.0	15.0
SHIPS	00	Z	500	11	0	10.3	14.4	10.0
SHIPS	12	Z	500	11	0	14.5	22.8	17.5
V2EZ	00	Z	500	11	1	13.9	19.5	13.6
V2EZ	12	Z	500	9	0	15.2	18.1	9.8
V2GH	00	Z	500	18	0	14.3	19.5	-13.2
V2GH	12	Z	500	17	0	16.2	18.2	-8.3
V2LV	00	Z	500	30	0	12.6	15.4	8.9
V2LV	12	Z	500	25	0	9.4	15.5	12.4
WTEU	00	Z	500	2	0	1.5	4.7	4.5
ZDLG	00	Z	500	1	0	0.0	4.0	-4.0
ZDLG	12	Z	500	6	0	9.2	15.1	12.0
03953	00	Z	500	31	0	12.3	17.9	13.1
03953	12	Z	500	30	0	14.5	16.1	6.9
04018	00	Z	500	29	0	14.1	22.1	17.1
04018	12	Z	500	30	0	15.4	19.6	12.0
04220	00	Z	500	30	0	17.9	22.6	13.7
04220	12	Z	500	29	0	16.5	17.6	6.0
04270	00	Z	500	30	0	22.0	23.3	7.9
04270	12	Z	500	30	0	16.4	17.6	6.4
04339	00	Z	500	31	0	18.3	20.4	8.9
04339	12	Z	500	31	0	12.3	12.5	2.4
04360	00	Z	500	29	0	14.0	16.0	7.6
04360	12	Z	500	30	0	18.5	19.3	5.5
08001	00	Z	500	26	0	13.3	15.1	7.2
08001	12	Z	500	27	0	9.4	10.2	-4.0
08508	00	Z	500	30	0	15.3	16.1	5.1
08508	12	Z	500	28	0	11.4	12.1	4.2
60020	00	Z	500	31	0	8.4	19.2	17.2
60020	12	Z	500	29	0	7.9	14.1	11.6
71600	00	Z	500	29	0	11.9	14.6	8.5
71600	12	Z	500	29	0	12.8	18.0	12.7
72201	00	Z	500	31	0	10.4	13.5	8.6
72201	12	Z	500	30	0	15.5	17.8	8.7

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	SD	RMS	BIAS
72402	00	Z	500	27	0	15.4	18.7	10.7
72402	12	Z	500	29	0	10.8	15.3	10.8
74494	00	Z	500	29	0	10.9	12.2	5.3
74494	12	Z	500	29	0	17.8	19.9	8.9
78016	00	Z	500	16	0	9.3	10.5	5.0
78016	12	Z	500	30	0	11.7	12.0	2.7

TABLE 12

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:100 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS	:Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	100	11	0	0	0.0	0.0	-0.8
DBBH	12	V	100	22	0	0	2.5	-1.9	0.7
DBLK	00	V	100	1	0	0	4.0	-0.5	-0.2
DBLK	12	V	100	14	0	7	4.0	-3.0	0.6
FNOR	00	V	100	9	0	0	4.5	-1.1	2.0
FNOR	12	V	100	8	0	0	4.5	-1.1	2.4
FNOU	00	V	100	8	0	0	4.5	-0.4	-0.4
FNOU	12	V	100	6	0	0	4.5	0.0	3.9
FNPH	00	V	100	15	0	0	4.5	-0.2	-0.4
FNPH	12	V	100	13	0	0	2.2	-0.5	0.2
FNRS	00	V	100	7	0	0	2.4	-2.0	-1.4
FNRS	12	V	100	6	0	0	2.4	-2.3	0.3
JBOA	00	V	100	1	0	0	2.4	0.9	-0.3
JCCX	00	V	100	1	0	0	3.1	5.3	2.1
JIVB	00	V	100	1	0	0	4.3	-0.2	3.5
LDWR	00	V	100	27	0	0	4.3	0.3	-1.2
LDWR	12	V	100	23	0	0	2.6	-0.1	-1.7
NPH	00	V	100	1	0	0	2.6	-1.4	-5.0
OXVH2	00	V	100	21	0	0	2.6	-0.3	1.1
OXVH2	12	V	100	19	0	0	1.6	-0.4	1.1
OXYH2	00	V	100	14	0	0	3.0	-1.1	0.6
OXYH2	12	V	100	14	0	0	2.6	-1.7	-0.2
SHIPAF	00	V	100	1	0	0	2.7	-8.2	4.4
SHIPAF	12	V	100	3	0	0	2.7	-0.1	-0.1
SHIPS	00	V	100	4	0	0	2.7	6.2	-3.3
SHIPS	12	V	100	5	0	0	2.7	-1.1	-0.2
V2EZ	00	V	100	12	0	0	2.7	0.8	0.0
V2EZ	12	V	100	8	0	0	3.0	-0.6	-0.1
V2GH	00	V	100	16	0	0	3.0	2.4	0.0
V2GH	12	V	100	14	0	0	3.5	1.7	1.0
V2LV	00	V	100	26	0	0	4.2	1.5	0.2
V2LV	12	V	100	22	0	0	4.0	0.5	0.2
WTEU	00	V	100	2	0	0	3.3	-5.0	-1.8
ZDLG	12	V	100	6	0	0	3.3	-2.3	2.6
03953	00	V	100	30	0	0	3.6	-0.9	0.7
03953	12	V	100	28	0	0	2.7	-1.2	0.6
04018	00	V	100	27	0	0	2.5	0.1	0.3
04018	12	V	100	28	0	0	2.5	-0.6	1.2
04220	00	V	100	29	0	0	2.2	-0.4	0.7
04220	12	V	100	29	0	0	1.4	-1.5	0.0
04270	00	V	100	27	0	3	1.5	-0.9	0.6
04270	12	V	100	28	0	0	4.8	-2.1	0.4
04339	00	V	100	31	0	0	1.9	-0.1	-0.3
04339	12	V	100	31	0	0	1.9	0.1	0.1
04360	00	V	100	29	0	0	2.2	-0.1	0.2
04360	12	V	100	30	0	0	1.7	-1.7	-0.6
08001	00	V	100	24	0	0	3.0	0.9	1.3
08001	12	V	100	25	0	0	2.5	-0.7	0.0
08508	00	V	100	30	0	0	2.4	-0.2	-1.2
08508	12	V	100	27	0	0	3.5	-0.7	0.7
60020	00	V	100	30	0	0	1.6	-0.8	-0.7
60020	12	V	100	30	0	0	2.2	-1.1	0.5
71600	00	V	100	29	0	0	4.3	0.0	-0.2
71600	12	V	100	29	0	0	2.6	0.0	-0.4
72201	00	V	100	26	0	0	4.7	1.5	0.8
72201	12	V	100	27	0	0	3.8	1.0	0.5
72402	00	V	100	26	0	0	3.6	-1.4	0.1
72402	12	V	100	27	0	0	3.0	-1.6	1.3
74494	00	V	100	22	0	0	3.8	-1.3	1.0
74494	12	V	100	27	0	0	3.5	-1.2	0.6
78016	00	V	100	15	0	0	3.4	-1.4	1.0
78016	12	V	100	30	0	0	3.0	-0.6	0.5

TABLE 13

MONTHLY MONITORING OF RADIOSONDE OBSERVATIONS (COSNA)
MONITORING CENTRE: BRACKNELL
MONTH: October, 1996

Monitoring procedures

Period		:One calendar month.
Data monitored		:Reports from each unique identifier for radiosonde TEMPs.
Area monitored		:0°N - 90°N, 100°W - 40°E
Standard of comparison		:Background field from Bracknell global model.
Position		:Average latitude and longitude for period.
Observation times		:00, 12 UTC.
Level monitored		:500 hPa.
Element monitored		:VECTOR WIND in m s^{-1}
Parameters monitored	:NUM OBS	:Number of observations available at level shown during period.
	:NUM GROSS	:Number of gross errors at level shown during period.
	:% REJ	:Percentage of observations rejected by quality control at level shown during period.
	:UBIAS,VBIAS:	Mean difference of observations of U and V components from background values at level shown excluding those with gross errors.
	:RMS	:Root Mean Square difference of observations from background values at level shown excluding those with gross errors.

GROSS ERROR LIMITS :Defined in Appendix I.2

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
DBBH	00	V	500	13	0	7	0.0	1.7	-2.4
DBBH	12	V	500	24	0	0	4.6	-2.5	0.9
DBLK	00	V	500	1	0	0	5.9	2.3	6.1
DBLK	12	V	500	14	0	7	5.9	-0.6	0.4
FNOR	00	V	500	9	0	0	5.1	-0.9	1.0
FNOR	12	V	500	9	0	0	5.1	0.3	-0.2
FNOU	00	V	500	13	0	0	5.1	0.2	-0.1
FNOU	12	V	500	8	0	0	3.3	-1.4	-1.3
FNPH	00	V	500	15	0	0	3.3	-1.4	-1.0
FNPH	12	V	500	13	0	0	3.4	-1.7	0.1
FNRS	00	V	500	7	0	0	3.4	0.4	-3.0
FNRS	12	V	500	6	0	0	3.4	-0.1	0.2
JBOA	00	V	500	1	0	0	3.4	0.3	-0.6
JCCX	00	V	500	1	0	0	2.2	-0.9	6.8
JIVB	00	V	500	1	0	0	2.2	0.5	2.2
LDWR	00	V	500	26	0	0	2.2	-0.1	0.4
LDWR	12	V	500	23	0	0	4.2	0.1	-1.8
NPH	00	V	500	1	0	0	3.2	-0.9	0.7
OXVH2	00	V	500	21	0	0	3.2	0.5	0.2
OXVH2	12	V	500	19	0	0	4.1	-0.5	-0.2
OXYH2	00	V	500	16	0	0	3.4	1.0	0.7
OXYH2	12	V	500	14	0	0	4.3	-1.6	-0.9
SHIP	00	V	500	1	0	0	3.6	-7.1	-1.5
SHIP	12	V	500	2	0	0	3.6	0.4	-0.6
SHIPAF	00	V	500	4	0	0	3.6	1.8	0.6
SHIPAF	12	V	500	6	0	0	3.6	4.5	-0.6
SHIPPPS	00	V	500	1	0	0	3.6	1.9	0.3
SHIPS	00	V	500	10	0	0	3.6	0.7	0.9
SHIPS	12	V	500	9	0	0	5.0	-2.1	-0.2
V2EZ	00	V	500	12	0	0	5.9	2.4	0.2
V2EZ	12	V	500	9	0	0	4.9	1.3	0.0
V2GH	00	V	500	18	0	0	4.9	0.4	-0.3
V2GH	12	V	500	17	0	0	2.9	-1.2	-0.6
V2LV	00	V	500	28	0	0	2.3	2.4	-0.3
V2LV	12	V	500	23	0	0	4.9	-0.9	-1.0
WTEU	00	V	500	2	0	0	3.0	1.3	1.2
ZDLG	00	V	500	1	0	0	3.0	0.9	1.9
ZDLG	12	V	500	6	0	0	3.0	-2.7	1.2
03953	00	V	500	30	0	0	4.1	-0.1	0.9
03953	12	V	500	30	0	0	5.1	-0.5	0.3
04018	00	V	500	29	0	0	4.5	0.1	1.6
04018	12	V	500	29	0	0	4.2	1.0	0.3
04220	00	V	500	29	0	3	3.3	-1.0	0.6
04220	12	V	500	29	0	0	5.6	-1.3	-0.8
04270	00	V	500	30	0	0	4.2	-0.2	0.8
04270	12	V	500	30	0	0	3.4	-0.8	0.2
04339	00	V	500	31	0	0	4.4	0.4	0.6
04339	12	V	500	31	0	0	3.2	0.2	0.8
04360	00	V	500	29	0	0	3.3	-0.7	-0.1
04360	12	V	500	30	0	0	2.5	-0.1	0.7
08001	00	V	500	26	0	0	3.2	-0.9	0.0
08001	12	V	500	26	0	0	2.8	-0.8	-0.7
08508	00	V	500	30	0	0	3.0	0.7	-0.4
08508	12	V	500	28	0	0	4.6	-0.9	-0.3
60020	00	V	500	30	0	0	4.0	-0.9	-0.2
60020	12	V	500	29	0	0	3.1	-0.5	-0.2
71600	00	V	500	29	0	0	5.2	0.8	1.0
71600	12	V	500	29	0	0	4.7	1.0	0.3
72201	00	V	500	31	0	0	3.1	0.0	-0.5
72201	12	V	500	30	0	0	2.0	0.5	-1.0

WMO IDENT	OBS TIME	ELM	LEV	NUM OBS	NUM GROSS	% REJ	RMS	UBIAS	VBIAS
72402	00	V	500	27	0	0	3.2	0.2	1.2
72402	12	V	500	29	0	0	3.2	-0.8	1.4
74494	00	V	500	29	0	0	2.4	-1.5	1.1
74494	12	V	500	28	0	0	3.5	-1.0	0.6
78016	00	V	500	16	0	0	3.2	-1.7	1.8
78016	12	V	500	30	0	0	2.6	-1.2	1.2

APPENDIX I

1. The gross error limits for observation minus background differences of geopotential height in Tables 5, 10 and 11 are:-

Level (hPa)	Geopotential height (metres)
1000	100
850	100
700	100
500	150
400	175
300	200
250	225
200	250
150	275
100	300
70	375
50	400
30	450

The weighted RMS values used in Table 5,10 and 11 are calculated using the following weights:-

Level (hPa)	Weight
1000	3.70
850	3.40
700	2.90
500	2.20
400	1.90
300	1.60
250	1.50
200	1.37
150	1.19
100	1.00
70	0.87
50	0.80
30	0.64

2. The gross error limits for observation minus background differences of windspeed in Tables 6,12 and 13 are:-

Level (hPa)	Windspeed m s^{-1}
1000	35
850	35
700	40
500	45
400	50
300	60
250	60
200	50
150	50
100	45